

Configuring IP Peer Networking

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Overview

You use the following interfaces for configuring various components of IP Peer Networking:

- CS 1000 Element Manager
- Command Line Interface (CLI)
- NRS Manager
- Optivity Telephony Manager (OTM)

Note: You can use OTM to launch Element Manager. Refer to *Optivity Telephony Manager: System Administration* (553-3001-330) for detailed information on OTM.

This chapter provides instructions on how to implement IP Peer Networking in your IP network using overlays and Element Manager. Once you implement IP Peer, you must then configure data in the NRS, as described in “Configuring and managing the Network Routing Service” on page 379.

For information on how to install system components and how to perform basic configuration, refer to the following NTPs:

- *Communication Server 1000M and Meridian 1: Small System Installation and Configuration* (553-3011-210)
- *Communication Server 1000M and Meridian 1: Large System Installation and Configuration* (553-3021-210)
- *Communication Server 1000S: Installation and Configuration* (553-3031-210)
- *Communication Server 1000E: Installation and Configuration* (553-3041-210)

For a description of system management, refer to *System Management* (553-3001-300). For a detailed description of Element Manager, refer to *Element Manager: System Administration* (553-3001-332).

Once you install the various components and configured the basic information, you then implement the IP Peer Networking feature. Implementing IP Peer Networking in a CS 1000 network is similar to configuring a traditional circuit-switched network that uses a “star” topology. All CS 1000 systems form the outer points of the star, with respect to address resolution (the systems form a grid with respect to media paths). These systems are configured to route network-wide calls into the IP network over a route configured with Virtual Trunks. The Virtual Trunks are configured to use the NRS. The NRS, in conjunction with the SIP/H.323 Gateway software at each site, acts as the center of the “star”.

Element Manager and NRS Manager enable you to configure and maintain certain aspects of the system through a web browser.

Note 1: Element Manager must be installed on each Signaling Server within the system.

Note 2: Element Manager requires Internet Explorer 6.0 (or later).

In addition to Element Manager and NRS Manager, you can perform a number of configuration functions through the Command Line Interface (CLI). You can access the CLI from a serial port, or by using the Telnet or rlogin commands over a network connection.

You can also use OTM to access the web server running on the Signaling Server.

Task summary

You must configure the following data when setting up a IP network:

- 1** Plan your Network Numbering Plan. Refer to *Dialing Plans: Description* (553-3001-183).
 - a** Are you using Uniform Dialing Plan (UDP) or Coordinated Dialing Plan (CDP), or both?
 - b** Are you also using Group Dialing Plan (GDP), North American Numbering Plan (NANP), or Flexible Numbering Plan (FNP)?

- 2 Perform basic installation, setup, and configuration of the various components, including the Signaling Server. Refer to:
 - *Communication Server 1000M and Meridian 1: Small System Installation and Configuration* (553-3011-210)
 - *Communication Server 1000M and Meridian 1: Large System Installation and Configuration* (553-3021-210)
 - *Communication Server 1000S: Installation and Configuration* (553-3031-210)
 - *Communication Server 1000E: Installation and Configuration* (553-3041-210)
 - *Signaling Server: Installation and Configuration* (553-3001-212).
- 3 Configure the Primary, Alternate, and Failsafe NRS at installation and initial setup of the Signaling Server. See *Signaling Server: Installation and Configuration* (553-3001-212).

Note: The NRS requires IP telephony node configuration files. These files are installed and configured during the Signaling Server software installation (basic configuration step).

- 4 Configure the Customer Data Block with any desired networking settings and options, including ISDN. Use Element Manager or the Command Line Interface (LD 15). See “Configuring the Customer Data Block” on page 289 and “Feature Implementation of IP Peer Networking” on page 341.
- 5 Configure the D-channel using Element Manager or the Command Line Interface (LD 17). See “Configuring D-channels” on page 292 and “Feature Implementation of IP Peer Networking” on page 341.
- 6 Configure the zones.
- 7 Configure the SIP and/or H.323 Virtual Trunk routes using Element Manager or the Command Line Interface (LD 16). Configure the Route Data Blocks and associate the Virtual Trunk routes with the IP network by configuring the following parameters:
 - a route information

- b network management information (for example, Access Restrictions)
- c bandwidth zone
- d protocol identifier
- e associated Node ID

For the Element Manager procedure, see “Configuring the Virtual routes and trunks” on page 298. For the CLI procedure, see “Feature Implementation of IP Peer Networking” on page 341.

- 8 Configure the Virtual Trunks using Element Manager (see “Configuring the Virtual routes and trunks” on page 298) or the Command Line Interface (LD 14) and “Feature Implementation of IP Peer Networking” on page 341.
- 9 Use Element Manager or the Command Line Interface (CLI) to configure networking (“Configuring networking” on page 310) and numbering plan features (“Configuring call routing” on page 315) within the Call Server, such as routing calls based on digits dialed. For example, CDP configuration for the dialing plan used on the Call Server includes:
 - a ESN control block basics (LD 86): configure the dialing plan
 - b Network Control Block (LD 87): configure network access
 - c Route List Block (LD 86): create an entry for Virtual Trunk route
 - d Network Control Block (LD 15): enter CDP steering codes or UDP steering codes
- 10 Configure the codecs using Element Manager (see “Configuring codecs” on page 319).
- 11 Configure dialing plan information for calls that must be routed to circuit-switched trunks (for example, PSTN interfaces). See *Dialing Plans: Description* (553-3001-183) and *IP Trunk: Description, Installation, and Operation* (553-3001-363).
- 12 Configure the gateways. See “Configuring the Gateways” on page 364.
 - See “Enabling and configuring the H.323 Gateway” on page 364
 - “Enabling and configuring the SIP Trunk Gateway” on page 369

- 13 Configure the NRS. See “Configuring and managing the Network Routing Service” on page 379.

Launching Element Manager

To log in to Element Manager, follow the steps in Procedure 3. Element Manager supports Microsoft® Internet Explorer 6.0 (or later) for the Windows® operating systems.

Procedure 3 Launching Element Manager

- 1 Open the web browser.
- 2 Enter the **Signaling Server Node IP address** in the Address Bar of the browser window and press **Enter** on the keyboard.

Note: The ELAN network interface IP address may be required, instead of the Node IP address, to access to the Element Manager login web page in secure environments.
- 3 Element Manager launches and the **Login** web page opens (see Figure 84 on page 287).
 - a. Enter the **User ID** and **Password** of the Call Server.

The IP address of the Call Server is auto-filled in the **CS IP Address** field.
 - b. Click **Login**.

Figure 84
Element Manager – Login web page

>CS 1000 ELEMENT MANAGER

>THIS IS NORTTEL

User ID:

Password:

Call Server IP Address: 207.179.153.99

Login Reset

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- 4 The **System Overview** web page opens (see Figure 85 on page 288).
The navigator is located on the left side of the browser window.
The **System Overview** web page contains information about the system.
The web page shows that the Call Server is a central component of the system and also lists other components in the system.

Figure 85
Element Manager – System Overview

The screenshot displays the Nortel CS 1000 Element Manager web interface. The top banner includes the Nortel logo, the title "CS 1000 ELEMENT MANAGER", and links for "Help" and "Logout". Below the banner, the left sidebar contains a navigation menu with categories: Home, Links, System, IP Telephony, Customers, Routes and Trunks, Dialing and Numbering Plans, and Services. The main content area is titled "Home - System Overview" and shows system identification details (SNMP) and call server information. The status bar at the bottom indicates "Managing: 207.179.153.99" and "Home - System Overview".

Home - System Overview	
- System Identification (SNMP)	
Site Name	
System Name	
Contact Name	System Contact
SNMP System Name	System Name
SNMP Location	System Location
- Call Server	
IP Address	207.179.153.99
Type	Nortel Communication Server 1000S/M
Version	2121
Release	450C
Redundancy State	NOT APPLICABLE
CPU and Health State	NOT APPLICABLE
+ Signaling Server	
+ Web Server	
+ Users Logged into this Signaling Server	

Note 1: To log out of Element Manager, click **Logout** at the right in the Element Manager banner at the top of any Element Manager web page (for example, see Figure 85 on page 288). The **Login** web page (see Figure 84 on page 287) is displayed again. If you need to log back in to Element Manager, repeat step 3 on page 286.

Note 2: Element Manager times out after a period of inactivity.

Users are logged out without any warning in all Element Manager web pages, with the exception of the **Edit** web page (see Figure 117 on page 321). When you are working in the Edit web page, a message opens that warns of the impending time-out action. Click **OK** (on the warning message) within the remaining time-out period (5 minutes) to reset the timer. If you do not respond within the 5 minute warning period, your

session is canceled and you must log in again. Any data modifications made on screen, but not submitted to the system, are lost.

Note 3: For additional information about Element Manager, refer to the following NTPs:

- *Signaling Server: Installation and Configuration* (553-3001-212)
- *Element Manager: System Administration* (553-3001-332)

End of Procedure

Using Element Manager for configuration

Read the following sections and follow the procedures in the order given.

Configuring the Customer Data Block

Procedure 4

Configuring the Customer Data Block and enabling ISDN

To configure the Customer Data Block with network settings and options, you can use Element Manager or LD 15 of the Command Line Interface.

- 1 Click **Customers** in the navigator.

The **Customers** web page opens (see Figure 86).

Figure 86

Customers web page

Managing: 207.179.153.99 Customers			
Customers			
Choose a Customer Number: 2 to Add			
- Customer: 0	Total routes: 2	Total trunks: 0	Edit
- Customer: 1	Total routes: 0	Total trunks: 0	Edit
- Customer: 8	Total routes: 1	Total trunks: 0	Edit

- 2 Click **Edit** associated with the customer (not the route) to open the **Customer xx Property Configuration** web page, where xx is the Customer number.

Figure 87 on page 290 shows the **Customer xx Property Configuration** web page.

Use the **Customer Property Configuration** web page to configure Customer data.

Figure 87
Customer xx Property Configuration web page

Managing: 207.179.153.99
Customers » Customer 0 Property Configuration

Customer 0 Property Configuration

- Basic Configuration

Input Description	Input Value
Customer Data Block (CDB) (TYPE)	CDB
Customer number (CUST)	0
ANI Attendant Billing number (ANAT)	111
ANI Listed Directory Number (ANLD)	1111

Options (OPT) [Edit](#)

- + Flexible Feature Codes (FFC_DATA)
- + Feature options (FTR_DATA)
- + Listed Directory Number options (LDN_DATA)
- + ISDN and ESN Networking options (NET_DATA)
- + Night service options (NIT_DATA)
- + Feature Packages

[Submit](#) [Refresh](#) [Delete](#) [Cancel](#)

* Mandatory fields of current configuration

- 3 Click **Feature Packages**.
The Feature Packages list expands.
- 4 Scroll down the page and select **Integrated Services Digital Network Package:145**.

5 Click **Integrated Services Digital Network (ISDN)**.

The ISDN list expands to show the ISDN package options, as shown in Figure 88.

Figure 88
ISDN package options

- Integrated Services Digital Network		Package: 145
Input Description	Input Value	
+ Dial Access Prefix on CLID table entry option (DAPC)		
Integrated Services Digital Network (ISDN)	☒	
- Virtual Private Network Identifier (VPNI)	1	Range: 1 - 16383
- Private Network Identifier (PNI)	1	Range: 1 - 16383
- Node DN (PINX_DN)		
- Multi-location Business Group (MBG)	0	Range: 0 - 65535
- Business Sub Group Consult-only (BSGC)	65535	Range: 0 - 65535
- Prefix 1 (PF1)		
- Prefix 2 (PF2)		
- Home Number Plan Area code (HNP)		Range: 200 - 999
- Prefix for Central Office (HNXX)		Range: 100 - 9999
- Home location code (HLOC)		Range: 100 - 9999999
- Local steering code (LSC)		
- Calling Number Type (CNT)	CLID feature displays the set's Prime DN (PDN) v	
- Redirection Count for ISDN calls (RCNT)	5	
- CLID information for incoming/outgoing calls (OCLI)	No manipulation is done (NO) v	
- Public Service Telephone Networks (PSTN)	☐	

6 Scroll to the bottom of the page and click **Submit**.

End of Procedure

Configuring D-channels

Procedure 5 Configuring D-channels

To configure D-channels, use Element Manager or LD 17 of the Command Line Interface.

Figure 89 on page 292 and Figure 90 on page 293 show the **D-Channel Configuration** web pages in Element Manager. Use these web pages to configure D-channels.

- 1 Select **Routes and Trunks > D-Channels** from the navigator.

Note: The first time you access this web page, a message indicates that no D-channels have been configured.

The **D-Channels** web page opens as shown in Figure 89. This window also contains links to D-Channel maintenance and diagnostic pages.

Figure 89
D-Channels web page

Managing: 207.179.153.99
Routes and Trunks > D-Channels

D-Channels

Maintenance

- [D-Channel Diagnostics \(LD 96\)](#)
- [Network and Peripheral Equipment \(LD 32, Virtual D-Channels\)](#)
- [MSDL Diagnostics \(LD 96\)](#)
- [TMDI Diagnostics \(LD 96\)](#)
- [D-Channel Expansion Diagnostics \(LD 48\)](#)

Configuration

Choose a D-Channel Number: and type:

- 2 In the **Configuration** section, input the D-channel number and click **to Add**.

The **D-Channels xx Property Configuration** web page opens, as shown in Figure 90. The D-channel number is denoted by xx. Required fields are indicated with a green asterisk.

Figure 90
D-channels xx Property Configuration web page

Managing: 207.179.153.99
 Routes and Trunks » D-Channels » D-Channels 0 Property Configuration

D-Channels 0 Property Configuration

- Basic Configuration

Input Description	Input Value
Action Device And Number (ADAN) (TYPE)	DCH
D channel Card Type (CTYP)	
Card number (CDNO)	
Port number (PORT)	
Designator (DES)	
Recovery to Primary (RCVP)	☐
User (USR)	
Interface type for D-channel (IFC)	Meridian DMS-100 (D100)
Country (CNTY)	ETS 300=102 basic protocol (ETSI)
D-Channel PRI loop number (DCHL)	
Primary Rate Interface (PRI)	more PRI
Secondary PRI2 loops (PRI2)	
Meridian 1 node type (SIDE)	Slave to the controller (USR)
Release ID of the switch at the far end (RLS)	25
Central Office switch type (CO_TYPE)	100% compatible with Bellcore standard (STD)
Integrated Services Signaling Link Maximum (ISLM)	200 Range: 1 - 4000
Signaling Server Resource Capacity (SSRC)	1800 Range: 0 - 4000

+ Basic options (BSCOPT)
 + Advanced options (ADVOPT)
 + Feature Packages

- 3 Configure the following fields with the following values:
 - a. **D channel Card Type (CTYP)** = D-Channel is over IP (DCIP)
 - b. **User (USR)** = Integrated Services Signaling Link Dedicated (ISLD)
 - c. **Interface type for D-channel (IFC)** = Meridian Meridian1 (SL1)

- 4 If you are defining the Network Name Display:
 - a. Select the **Release ID of the switch at the far end (RLS)** from the drop-down list.
 - b. Click **Basic options (BSCOPT)** tab.

The **Basic options** list expands, as shown in Figure 91.

Figure 91
D-channel — Basic options

The screenshot shows the 'Basic options (BSCOPT)' configuration page. It contains the following items:

- Basic options (BSCOPT)
- Primary D-channel for a backup DCH (PDCH) [dropdown]
- PINX customer number (PINX_CUST) [dropdown]
- Progress signal (PROG) [dropdown]
- Calling Line Identification (CLID) [dropdown]
- Output request Buffers (OTBF) [32]
- D-channel transmission Rate (DRAT) [56 kb/s when LCMT is AMI (56K)]
- Channel Negotiation option (CNEG) [No alternative acceptable, exclusive. (1)]
- Remote Capabilities (RCAP) [Edit]

- c. Configure **Remote Capabilities (RCAP)** by clicking **Edit**.
 - The **Remote Capabilities Configuration** web page opens.
 - d. Scroll down the page and click the check box for **Network name Display method 2 (ND2)**.
 - e. Click **Return - Remote Capabilities** at the bottom of the page.
 - The **D-Channel xx Property Configuration** web page reopens.
 - 5 Click **Submit** to save the changes.
- The **D-Channels** web page reopens (Figure 92 on page 295) with the changes.

Figure 92
D-channel configuration results

Managing: **207.179.153.99**
Routes and Trunks » D-Channels

D-Channels

Maintenance

[D-Channel Diagnostics \(LD 96\)](#)
[Network and Peripheral Equipment \(LD 32, Virtual D-Channels\)](#)
[MSDL Diagnostics \(LD 96\)](#)
[TMDI Diagnostics \(LD 96\)](#)
[D-Channel Expansion Diagnostics \(LD 48\)](#)

Configuration

Choose a D-Channel Number: and type:

- Channel: 10	Type: DCH	Card Type: DCIP	Description: SCSE198Node8	Edit
---------------	-----------	-----------------	---------------------------	-------------------------------------

End of Procedure

Configuring zones

A zone is an area of a network that can be treated as a single entity with respect to the use of bandwidth for voice and signaling. Zones must be configured before the configuration of virtual routes.

Procedure 6 Configuring zones

- 1 Select **IP Telephony > Zones** from the navigator.

The **Zones** web page opens (see Figure 93 on page 296). This page also contains a link to Maintenance Commands for Zones, using LD 117.

Figure 93
Zones web page

- 2 Choose a zone number from the drop-down list.
- 3 Click to **Add**.
- 4 The **Zone Basic Property and Bandwidth Management** web page opens (see Figure 94).

Figure 94
Zone Basic Property and Bandwidth Management web page

Input Description	Input Value
Zone Number (ZONE):	8
Intrazone Bandwidth (INTRA_BW):	10000
Intrazone Strategy (INTRA_STGY):	Best Quality (BQ)
Interzone Bandwidth (INTER_BW):	10000
Interzone Strategy (INTER_STGY):	Best Quality (BQ)
Resource Type (RES_TYPE):	Shared (SHARED)
Zone Intent (ZBRN):	MO (MO)
Description (ZDES):	

Note: The **Zone Number (ZONE)** field is auto-filled based on the number selected on the Zone List web page.

- 5 Enter the **Intrazone Bandwidth (INTRA_BW)**.

- 6 Select the **Intrazone Strategy (INTRA_STGY)** from the drop-down list.
- 7 Enter the **Interzone Bandwidth (INTER_BW)**.
- 8 Select the **Interzone Bandwidth (INTER_BW)** from the drop-down list.
- 9 Select the **Resource Type (RES_TYPE)** from the drop-down list.
- 10 Select the **Branch Office Support (ZBRN)** from the drop-down list.
- 11 Enter a description of the zone in the **Description (ZDES)** text box.
- 12 Click **Submit**.

The **Zones** web page reopens with the new zone added (see Figure 95).

Figure 95
Zones web page with newly added zone

Managing: 207.179.153.99
IP Telephony » Zones

Zones

Maintenance

- Maintenance Commands for Zones (LD 117)

Configuration

Please Choose the Zone 9

- + Zone 0
- + Zone 1
- + Zone 2
- + Zone 3
- + Zone 4
- + Zone 5
- + Zone 6
- + Zone 7
- Zone 8
 - Zone Basic Property and Bandwidth Management
 - Adaptive Network Bandwidth Management and CAC
 - Alternate Routing for Calls between IP Stations
 - Branch Office Dialing Plan and Access Codes
 - Branch Office Emergency Service Information
 - Branch Office Time Difference and Daylight Saving Time Property

End of Procedure

Configuring the Virtual routes and trunks

Procedure 7

Configuring Virtual Trunk routes

To configure Virtual Trunk routes, you can use Element Manager or LD 16 of the Command Line Interface.

Figure 97 on page 299 shows the **New Route Configuration** web page in Element Manager. Use this web page to configure Virtual Trunk routes.

Note: The zone parameter makes the codec selections and calculates the bandwidth usage for calls to the trunk members of a given route.

- 1 Select **Routes and Trunks > Routes and Trunks** from the navigator.

The **Routes and Trunks** web page opens, as shown in Figure 96.

Figure 96

Routes and Trunks web page

Managing: 207.179.153.99			
Routes and Trunks > Routes and Trunks			
Routes and Trunks			
+ Customer: 0	Total routes: 2	Total trunks: 0	Add route
- Customer: 1	Total routes: 0	Total trunks: 0	Add route
+ Customer: 8	Total routes: 1	Total trunks: 0	Add route

- 2 Click **Add route** associated with the customer.

The **Customer xx, New Route Configuration** web page opens (where xx is the customer number). See Figure 97 on page 299.

Figure 97
New Route Configuration web page

Managing: 207.179.152.99
 Routes and Trunks » Routes and Trunks » Customer 0, New Route Configuration

Customer 0, New Route Configuration

- Basic Configuration

Input Description	Input Value
Route Data Block (RDB) (TYPE)	PDB
Customer number (CUST)	0
Route Number (ROUT)	
Designator field for trunk (DES)	
Trunk Type (TKTP)	
Incoming and Outgoing trunk (ICOG)	
Access Code for the trunk route (ACOD)	

[Basic Route Options](#)
[Network Options](#)
[General Options](#)
[Advanced Configurations](#)

* Mandatory fields of current configuration

3 Under **Basic Configuration**, fill in the required fields to create a new Virtual Trunk Route:

- a. Select a **Route Number (ROUT)** from the drop-down list.
- b. Select the **Trunk Type (TKTP)** = TIE trunk data block (TIE).

When **Trunk Type (TKTP)** is selected, the following three options appear (see Figure 98 on page 300):

- **The route is for a virtual trunk route (VTRK)** (see step 4 on page 300)
 - **Digital Trunk Route (DTRK)**
 - **Integrated Services Digital Network option (ISDN)** (see step 5 on page 300)
- c. Enter the **Access Code for the trunk route (ACOD)**.

Figure 98
Options available when TIE is selected

The route is for a virtual trunk route (VTRK) ☐ Digital Trunk Route (DTRK) ☐ Integrated Services Digital Network option (ISDN) ☐
--

- 4 Select **The route is for a virtual trunk route (VTRK)** check box.
Three fields display as shown in Figure 99.

Figure 99
Virtual trunk route

The route is for a virtual trunk route (VTRK) ☒	
- Zone for codec selection and bandwidth management (ZONE)	Range: 0 - 255
- Node ID of signaling server of this route (NODE)	Range: 0 - 9999
- Protocol ID for the route (PCID)	H323 (H323) v

- a. Enter a **ZONE** number.
- b. Enter the **NODE** ID (the node served by this Signaling Server).
- c. Select the **Protocol ID for the route (PCID)**. H323 (H323) and SIP (SIP) are two of the available options.

Note: If SIP is selected as the protocol ID for the route (PCID), then the **Print Correlation ID in CDR for the route (CRID)** check box is displayed. CRID only appears if VTRK is YES and PCID is SIP and CDR is turned on for the route.

- 5 Select the **Integrated Services Digital Networks option (ISDN)** check box.

The ISDN section expands as shown in Figure 100 on page 301.

Figure 100
ISDN option

Integrated Services Digital Network option (ISDN) ☒	
- Mode of operation (MODE)	
- Interface type for route (IFC)	Meridian M1 (SL1)
- Private Network Identifier (PNI)	0 Range: 0 - 32700
- Network Calling Name Allowed (NCNA)	☒
- Network Call Redirection (NCRD)	☐
- Channel Type (CHTY)	B-channel (BCH)
- Call Type for outgoing direct dialed TIE route (CTYP)	Unknown Call type (UKWN)
- Insert ESN Access Code (INAC)	☐
- Integrated Service Access Route (ISAR)	☐
- Display of Access Prefix on CLID (DAPC)	☐

- a. Choose **Mode of operations (MODE)** = Route uses ISDN Signaling Link (ISLD).
 - b. Choose **Interface type for route (IFC)** = Meridian M1 (SL1).
 - c. Select the **Network Calling Name Allowed (NCNA)** check box.
- 6 Select the **Network Call Redirection (NCRD)** check box (see Figure 101).

Figure 101
NCRD

- Network Call Redirection (NCRD)	☒
- Trunk Route Optimization (TRO)	☐

- 7 Click **General Options**.
- The General Options list expands, as shown in Figure 102 on page 302.

Figure 102
General Options

- General Options	
Input Description	Input Value
Near End Disconnect Control (NEDC)	Originating end control (ORG) ▼
Far End Disconnect Control (FEDC)	Originating end control (ORG) ▼
M1 is the only Controlling Party on incoming calls (CPDC)	☐
Dial Tone on originating calls (DLTN)	☐
Hold failure threshold (HOLD)	
Seize failure threshold (SEIZ)	
Supervision Failure (SVFL)	
Trunk Access Restriction Group (TARG)	
Alternate trunk route for outgoing trunks (STEP)	Range: 0 - 511
Actual outgoing toll digits to be ignored for Code Restriction (OABS)	
Display IDC Name (DNAM)	☐
Enable Equal Access Restrictions (EQAR)	☐
ACD DNIS route (DNIS)	☐
Include DNIS number in CDR records (DCDR)	☐

- 8 Enter the **Trunk Access Restriction Group (TARG)** value if you are configuring a single customer.
- 9 Enter the appropriate information in the text boxes and in **Basic Route Options**, **Network Options**, **General Options**, and **Advanced Configurations**.
- 10 Click **Submit**.

The **Trunks and Routes** web page opens and the newly configured route is displayed for the customer.

End of Procedure

Configure virtual superloops for IP Phones (LD 97)

One or more virtual superloops must be configured to support IP Phone Virtual TNs (VTNs).

Large Systems

In Large Systems, virtual superloops contend for the same range of loops with phantom, standard and remote superloops, digital trunk loops and all service loops. Virtual superloops can reside in physically-equipped network groups or in virtual network groups.

Group maximums

Without FIBN, Package 365, there is a maximum of five network groups available, 0 – 4. With Package 365, there are a maximum of eight network groups, 0 – 7. For normal traffic engineering, provision up to 1024 VTNs on a single virtual superloop for a Large System. For non-blocking, do not exceed 120 VTNs on a single virtual superloop for a Large System.

Virtual superloops are configured in LD 98. Nortel recommends that virtual superloops are configured starting in the highest non-physically equipped group available.

LD 97 – Configure virtual superloop for Large Systems. (Part 1 of 2)

Prompt	Response	Description
REQ	CHG	Change
TYPE	SUPL	Superloop

LD 97 – Configure virtual superloop for Large Systems. (Part 2 of 2)

Prompt	Response	Description
SUPL	Vxxx	V stands for a virtual superloop and xxx is the number of the virtual superloop xxx = 0 – 156 in multiples of four for a Large System without Fiber Network Package (FIBN) package 365 xxx = 0 – 252 in multiples of four for a Large System with Fiber Network Package (FIBN) package 365 xxx = 0 – 252 in multiples of four for a CS 1000E system xxx = 96 – 112 in multiples of four for a Small System and CS 1000S system

Small Systems

In Small Systems, virtual superloops contend for the same range of superloops, 96 – 112, with phantom superloops.

Up to 128 VTNs can be configured on a single virtual superloop for a Small System, for a maximum number of 640 VTNs in each system.

In a Small System, mapping virtual superloops to virtual cards is the same as mapping phantom superloops to phantom cards. See Table 32.

Table 32
Virtual superloop/virtual card mapping for Small Systems

SUPL	Card
96	61-64
100	65-68
104	69-72
108	73-76
112	77-80

CS 1000S systems

Table 33 lists the virtual superloop and virtual card mapping for the CS 1000S system.

Table 33
Virtual superloop/virtual card mapping for CS 1000S Systems

SUPL	Card	
96	61-64	81-84
100	65-68	85-88
104	69-72	89-92
108	73-76	93-96
112	77-80	97-99

LD 97 PRT TYPE SUPL prints the implicit virtual, phantom, or DECT cards for a virtual, phantom, or DECT superloop.

LD 21 LUU allows the user to list unused units of a specified type (iset, vtrk, phantom, DECT) in a specified range of (virtual, and so on) TNs. Similarly, LUC of a specified type (virtual, phantom, or DECT) prints a list of unused cards on configured superloops.

Procedure 8
Configuring Virtual Trunks

To configure Virtual Trunks in Element Manager, use the “New Member Property” pages.

Figures 104 to 106 show the New Member Property web page in Element Manager. Use this web page to configure Virtual Trunks.

- 1 Select **Routes and Trunks > Routes and Trunks** from the navigator.
The **Routes and Trunks** web pages opens (see Figure 96 on page 298).
- 2 Select the **Customer** for which you are configuring Virtual Trunks.
The customer list expands showing a list of configured routes, as shown in Figure 103 on page 306.

Figure 103
Customer routes

Managing: 207.179.153.99			
Routes and Trunks » Routes and Trunks			
Routes and Trunks			
- Customer: 0	Total routes: 2	Total trunks: 0	Add route
- Route: 10	Type: TIE	Description: ISDN V TRUNKS	Edit Add trunk
- Route: 11	Type: FEX	Description: PSTN	Edit Add trunk
- Customer: 1	Total routes: 0	Total trunks: 0	Add route
+ Customer: 8	Total routes: 1	Total trunks: 0	Add route

- 3 Click **Add trunk** associated with the route listing to add new trunk members.

The **Customer xx, Route yy, New Trunk Configuration** web page opens, as shown in Figure 104 on page 307. The customer number is represented by xx and the route number by yy.

Figure 104
New Trunk Configuration web page

Managing: 207.179.153.99
 Routes and Trunks » Routes and Trunks » Customer 0, Route 11, New Trunk Configuration

Customer 0, Route 11, New Trunk Configuration

- Basic Configuration

Input Description	Input Value
Multiple trunk input number (MTINPUT)	
Trunk data block (TYPE)	FEA
Terminal Number (TN)	
Designator field for trunk (DES)	
Extended Trunk (XTRK)	
Customer number (CUST)	0
Route number, Member number (RTMB)	
Level 3 Signaling (SIGL)	
Channel ID for this trunk. (CHID)	
Increase or decrease the member numbers (INC)	Increase channel and member number (YES)
Class of Service (CLS)	Edit

+ Advanced Trunk Configurations

* Mandatory fields of current configuration

- 4 Choose **Multiple trunk input number (MTINPUT)** if you are using more than one trunk.
- 5 Select **Trunk data block (TYPE)** = IP Trunk (IPTI).
- 6 **Terminal Number (TN)**.
- 7 (Optional) **Designator field for trunk (DES)** is a text string only, and has no impact on functionality.
- 8 Select **Extended Trunk (XTRK)** = Virtual trunk (VTRK).
- 9 Enter a **Route number, Member number (RTMB)**.
- 10 Enter a **Trunk Group Access Restriction (TGAR)** value.

- 11 Enter a **Channel ID for this trunk (CHID)** = x (where x is in the range of 1-382).

Note: Channel_ID: A numeric input is required. However, there is no requirement for the CHID of Site A to match the CHID of Site B, as required with traditional ISL trunking as the channel is no longer point-to-point.

- 12 To specify a **Class of Service (CLS)** for the trunk, click **Edit**.

The **Class of Service Configuration** web page opens (see Figure 105). Select a Class of Service.

Figure 105

New Trunk Configuration – Class of Service Configuration web page

Managing: 207.179.153.99
Routes and Trunks > Routes and Trunks > Customer 0, Route 11, New Trunk Configuration > Class of Service Configuration

Class of Service Configuration

- Class of Service

Input Description	Input Value
- ACD Priority (CLS)	
- Barring (CLS)	
- Calling Line Identification (CLS)	
- Calling party (CLS)	
- Central Office Ringback (CLS)	
- Dial Pulse (CLS)	
- DTR PAD value (CLS)	
- Echo Canceling (CLS)	
- Hong Kong DIT (CLS)	
- Supervisory trunks (CLS)	
- Priority (CLS)	
- Manual Incoming (CLS)	
- Make-break ratio for dial pulse (CLS)	
- Polarity (CLS)	
- Short or long line (CLS)	
- Analog Semi Permanent Connections (CLS)	
- Centrex Switchhook Flash (CLS)	
- Transmission Class of Service (CLS)	
- Restriction level (CLS)	
- Warning Tone (CLS)	
- Battery Supervised COT (CLS)	
- Busy Tone Supervised COT (CLS)	
- Loop Break Supervised COT (CLS)	
- Reversed Ear Piece (CLS)	
- ARF Supervised COT (CLS)	

Return Class of Service Cancel

- 13 Select the Class of Service and then click **Return Class of Service** to return to the **New Trunk Configuration** web page (see Figure 104 on page 307).
- 14 Select **Advanced Trunk Configurations**.
The **Advanced Trunk Configurations** list expands, as shown in Figure 106.

Figure 106
New Trunk Configuration – Advanced Trunk Configurations

- Advanced Trunk Configurations	
Input Description	Input Value
CTI trunk Monitoring and Control (AST)	☐
Auto Terminate DN (ATDN)	
Music Conference Loop (CFLP)	Range: 0 - 159
Call Modification Features restriction (CMF)	☐
Digit Collection Ready (DTCR)	☐
Multifrequency PAD (MFPD)	☐
Network Class of Service group (NCOS)	0 ▾
Night Service Group number (NGRP)	0 ▾
Night Service directory number (NITE)	
Pulse Code Modulation Law (PCML)	
Pad Category table number for digital trunks (PDCA)	1 ▾
Private Line Directory Number (PRDN)	
Special digital FEX trunk (SFEX)	☐
Signaling Category table number (SICA)	1 ▾
Answer and disconnect Supervision required (SUPN)	☐
Step-by-step CO trunk (SXS)	☐
Trunk Identifier (TKID)	

- 15 Configure **Network Class of Service group (NCOS)**.
- 16 Click **Submit** to save the changes.
The **Customer Explorer** web page reopens, showing the new trunk member.

End of Procedure

Configuring networking

The following procedures indicate a Coordinated Dialing Plan for the configuration of networking.

Procedure 9

Creating an ESN control block

- 1 Select **Dialing and Numbering Plans > Electronic Switched Network** from the navigator.

The **Electronic Switched Network (ESN)** web page opens, as shown in Figure 107 on page 311.

Figure 107
Electronic Switched Network (ESN) web page

Managing: 207.179.153.99
 Dialing and Numbering Plans » Electronic Switched Network (ESN)

Electronic Switched Network (ESN)

- Customer 00
 - Network Control & Services
 - Network Control Parameters (NCTL)
 - ESN Access Codes and Parameters (ESN)
 - Digit Manipulation Block (DGT)
 - Route List Block (RLB)
 - Incoming Trunk Group Exclusion (ITGE)
 - Network Attendant Services (NAS)
 - Coordinated Dialing Plan (CDP)
 - Local Steering Code (LSC)
 - Distant Steering Code (DSC)
 - Trunk Steering Code (TSC)
 - Numbering Plan (NET)
 - Access Code 1
 - Home Area Code (HNPA)
 - Home Location Code (HLOC)
 - Location Code (LOC)
 - Numbering Plan Area Code (NPA)
 - Exchange (Central Office) Code (NXX)
 - Special Number (SPN)
 - Network Speed Call Access Code (NSCL)
 - Free Calling Area Screening (FCAS)
 - Free Special Number Screening (FSNS)
 - Access Code 2
 - Home Area Code (HNPA)
 - Home Location Code (HLOC)
 - Location Code (LOC)
 - Numbering Plan Area Code (NPA)
 - Exchange (Central Office) Code (NXX)
 - Special Number (SPN)
 - Network Speed Call Access Code (NSCL)
 - Free Calling Area Screening (FCAS)
 - Free Special Number Screening (FSNS)

+ Customer 01

- 2 Under Network Control & Service, click **ESN Access Codes and Parameters (ESN)**.

If no ESN database is configured, a warning dialog box opens. Click **OK** on the warning dialog box.

The **ESN Access Codes and Basic Parameters** web page opens, as shown in Figure 108 on page 312.

Figure 108
ESN Access Codes and Basic Parameters web page

Managing: 207.179.153.99
Dialing and Numbering Plans > Electronic Switched Network (ESN) > Customer 00 > Network Control & Services > ESN Access Codes and Basic Parameters

ESN Access Codes and Basic Parameters

Input Description	Input Value
Maximum number of Digit Manipulation tables (MXDM):	5
Maximum number of Route Lists (MXRL):	20
Time of Day Schedules (TODS): (Items separated by a space)	0 00 00 23 59
Routing Controls (RTCL):	☐
Check for Trunk Group Access Restrictions (TGAR):	☐
NCOS Map (NMAP): (Items separated by a space)	00-0 01-0 02-0 03-0 04-0 05-0 06-0 07-0 08-0 09-0 10-0 11-0 12-0 13-0 14-0 15-0 16-0 17-0 18-0 19-0 20-0 21-0 22-0 23-0 24-0 25-0 26-0 27-0 28-0 29-0 30-0 31-0 32-0 33-0 34-0 35-0 36-0 37-0 38-0 39-0 40-0 41-0
Maximum number of Supplemental Digit restriction blocks (MXSD):	1500
Maximum number of Incoming Trunk Group exclusion tables (MXDX):	0
Maximum number of Free Calling area screening tables (MXFC):	5
Maximum number of Free Special number screening tables (MXFS):	0
One or two digit NARS/BARS Access Code 1 (AC1):	9
NARS/BARS Dial Tone after dialing AC1 or AC2 access codes (DL TN):	☒
Expensive Route Warning Tone (ERWT):	☐
Extended Time of Day schedule (ETOD):	
Maximum number of LOC codes (NARS only) (MXLC):	0
Maximum number of Special Common Carrier entries (MSCC):	
One or two digit NARS Access Code 2 (AC2):	
Coordinated Dialing Plan feature for this customer (CDP):	☐

Submit Refresh Cancel

- 3 Define the parameters for the network. Include the **Maximum number of Route Lists (MXRL)**.
- 4 Scroll down the page and select the **Coordinated Dialing Plan feature for this customer (CDP)** check box.

The CDP list expands, as shown in Figure 109 on page 313.

- a. Configure the number of CDP steering codes
(**Maximum number of Steering Codes (MXSC)**).
- b. Configure the number of digits of the CDP dialed number
(**Number of digits in CDP DN (DSC + DN or LSC + DN) (NCDP)**).

Figure 109
ESN data block configuration – Coordinated Dialing Plan

Coordinated Dialing Plan feature for this customer (CDP): ☒	
- Maximum number of Steering Codes (MXSC):	10
- Number of digits in CDP DN (DSC + DN or LSC + DN) (NCDP):	4

- 5 Click **Submit** to save the changes.

The **Electronic Switched Network (ESN)** web page reopens
(Figure 107 on page 311).

End of Procedure

Procedure 10
Configuring network access

The default parameters for Network Control must be turned on.

- 1 Select **Dialing and Numbering Plans > Electronic Switched Network** from the navigator.
- 2 On the **Electronic Switched Network (ESN)** web page shown in Figure 107 on page 311, select **Customer xx > Network Control & Service > Network Control Parameters (NCTL)**.

The **Network Control Parameters** web page opens, as shown in Figure 110 on page 314.

Figure 110
Network Control Parameters web page

Managing: **207.179.153.99**
Dialing and Numbering Plans » Electronic Switched Network (ESN) » Customer
00 » Network Control & Services » Network Control Parameters

Network Control Parameters

+ Network Control Basic Parameters [Edit](#)

Off-Hook Queuing option: N
Call-Back Queuing option: YES
- Call-Back Queue Time Limit: 20

+ Network Class of Service Group Index -- 0 [Edit](#)

Facility Restriction Level: 0
Expensive Route Warning Tone: N
Network Speed Call access allowed: N
Off-Hook Queuing eligibility: N
Starting Priority in CBQ: 0
Maximum Priority attainable in CBQ: 0
Priority Promotion timer: 0

+ Network Class of Service Group Index -- 1 [Edit](#)

Facility Restriction Level: 1
Expensive Route Warning Tone: N
Network Speed Call access allowed: N
Off-Hook Queuing eligibility: N
Starting Priority in CBQ: 0
Maximum Priority attainable in CBQ: 0
Priority Promotion timer: 0

- 3 Click **Edit** to the right of **Network Control Basic Parameters**.

The **Network Control Basic Parameters** web page opens, as shown in Figure 111 on page 315.

Figure 111
Network Control Basic Parameters

Managing: **207.179.153.99**
 Dialing and Numbering Plans > Electronic Switched Network (ESN) > Customer 00 > Network Control & Services > Network Control Parameters > Network Control Basic Parameters

Network Control Basic Parameters

Input Description	Input Value
Off-Hook Queuing option (SOHQ):	☐
Call-Back Queuing option (SCBQ):	☒
- Call-Back Queue Time Limit (CBTL):	20
- RAN route number for CBQ offer to ESN stations (RANE):	
- RAN route number for CBQ offer to Conventional main (RANC):	

TCOS OHQ eligibility (TOHQ):

☐ TCOS 0	☐ TCOS 1	☐ TCOS 2	☐ TCOS 3
☐ TCOS 4	☐ TCOS 5	☐ TCOS 6	☐ TCOS 7

Submit Refresh Cancel

- 4 Click **Submit** to accept the default parameters on the **Network Control Basic Parameters** web page.

The **Network Control Parameters** web page reopens.

End of Procedure

Configuring call routing

Procedure 11 Configuring the Route List Block

This procedure creates the Route List Block that routes calls over the Virtual Trunk route.

- 1 Select **Dialing and Numbering Plans > Electronic Switched Network** from the navigator.
- 2 On the **Electronic Switched Network (ESN)** web page shown in Figure 107 on page 311, select **Customer xx > Network Control & Service > Route List Block (RLB)**.

The **Route List Blocks** web page opens, as shown in Figure 112.

Figure 112
Route List Blocks web page

Managing: **207.179.153.99**
Dialing and Numbering Plans > Electronic Switched Network (ESN) > Customer 00 > Network Control & Services > Route List Blocks

Route List Blocks

Please enter a route list index

+ Route List Block Index -- 0

Initial Set: 1
Number of Alternate Routing Attempts: 5
Set Minimum Facility Restriction Level: 0

+ Data Entry Index -- 0

Route Number: 10
Expensive Route: N
Facility Restriction Level: 0
Digit Manipulation Index: 2
Free Calling Area Screening Index: 0
Free Special Number Screening Index: 0
Business Network Extension Route: NO

+ Route List Block Index -- 1

Initial Set: 1
Number of Alternate Routing Attempts: 5
Set Minimum Facility Restriction Level: 1

+ Data Entry Index -- 0

Route Number: 10
Expensive Route: N
Facility Restriction Level: 1

- 3 Enter the route list index number in the **Please enter a route list index** text box and click **to Add**.

The **Route List Block** web page opens, as shown in Figure 113 on page 317.

Figure 113
Route List Block

Managing: 207.179.153.99
Dialing and Numbering Plans > Electronic Switched Network (ESN) > Customer 00 > Network Control & Services > Route List Blocks > Route List Block

Route List Block

Input Description	Input Value
Route List Index (RLI):	10
Entry Number for the Route List (ENTR):	0
Local Termination entry (LTER):	☐
Route Number (ROUT):	10
Skip Conventional Signaling (SCNV):	☐
Use Tone Detector (TDET):	☐
Time of Day Schedule (TOD):	0
Entry is a VNS Route (VNS):	☐
Conversion to LDN (CNV):	☐
Expensive Route (EXP):	☐
Facility Restriction Level (FRL):	0
Digit Manipulation Index (DMI):	0
ISL D Channel Down Digit Manipulation Index (ISDM):	0
Free Calling Area Screening Index (FCI):	0
Free Special Number Screening Index (FSNI):	0
Business Network Extension Route (BNE):	☐
Strategy on Congestion (SBCC):	No Reroute (NRR)
- QSIG Alternate Routing Causes (COPT):	QSIG Alternate Routing Cause 1
ISDN Drop Back Busy (IDBB):	Drop Back Disabled (DBD)
ISDN Off-Hook Queuing Option (IOHQ):	☐
Off-Hook Queuing Allowed (OHQ):	☐
Call Back Queuing Allowed (CBO):	☐
Number of Alternate Routing Attempts (NALT):	5
Initial Set (ISET):	0
Set Minimum Facility Restriction Level (MFRL):	
Overlap Length (OVL):	0

- 4 Fill in the appropriate information and click **Submit**.

The new Route List Block is generated, and the initial **Route List Blocks** web page reopens.

End of Procedure

Procedure 12 Configuring Steering Codes

This procedure defines how digits for a call are routed under a Coordinated Dialing Plan.

- 1 Select **Dialing and Numbering Plans > Electronic Switched Network** from the navigator.
- 2 On the **Electronic Switched Network (ESN)** web page shown in Figure 107 on page 311, select **Customer xx > Coordinated Dialing Plan (CDP) > Distant Steering Code (DSC)**.

The **Distant Steering Code List** web page opens, as shown in Figure 114.

Figure 114
Distant Steering Code List web page

Managing: **207.179.153.99**
Dialing and Numbering Plans > **Electronic Switched Network (ESN)** > Customer 00 > Coordinated Dialing Plan (CDP) > Distant Steering Code List

Distant Steering Code List

Please enter a distant steering code

+ Distant Steering Code List -- 2 Flexible Length number of digits: 0 Remote Radio Paging Access: N Route List to be accessed for trunk steering code: 12 Collect Call Blocking: N	Edit
+ Distant Steering Code List -- 3 Flexible Length number of digits: 0 Remote Radio Paging Access: N Route List to be accessed for trunk steering code: 12 Collect Call Blocking: N	Edit
+ Distant Steering Code List -- 4 Flexible Length number of digits: 0 Remote Radio Paging Access: N Route List to be accessed for trunk steering code: 12 Collect Call Blocking: N	Edit
+ Distant Steering Code List -- 5 Flexible Length number of digits: 0 Remote Radio Paging Access: N	Edit

- 3 Enter the steering code in the **Please enter a distant steering code** text box and click to **Add**.

The **Distant Steering Code** web page opens, as shown in Figure 115.

Figure 115
Distant Steering Code web page

Input Description	Input Value
Distant Steering Code (DSC):	1
Flexible Length number of digits (FLEN):	0
Display (DSP):	Local Steering Code (LSC)
Remote Radio Paging Access (RRPA):	☐
Route List to be accessed for trunk steering code (RLI):	0
Collect Call Blocking (CCBA):	☐
maximum 7 digit NPA code allowed (NPA):	
maximum 7 digit NXX code allowed (NXX):	

Submit Cancel

- 4 Fill in the appropriate information and click **Submit**.
The **Distant Steering Code List** web page reopens.

End of Procedure

Configuring codecs

Procedure 13 Configuring codecs

- 1 Select **IP Telephony > Nodes: Servers, Media Cards > Configuration** from the navigator.

The **Node Configuration** web page opens, as shown in Figure 116 on page 320.

Figure 116
Node Configuration web page

Managing: **207.179.153.99**
IP Telephony » Nodes: Servers, Media Cards » Node Configuration

Node Configuration

New Node

to Add

Import Node Files

+ Node: 8 Node IP: 192.168.253.7

Edit

Transfer / Status

Delete

- 2 Click **Edit** for the appropriate node.

The **Edit** web page opens, as shown in Figure 117 on page 321.

Figure 117
Edit web page

Managing: **207.179.153.99**
IP Telephony » Nodes: Servers, Media Cards » Node Configuration » IP Telephony: Node ID 8 » Edit

Edit

Save and Transfer Cancel

- Node

Node ID 8

Voice LAN (TLAN) Node IP address 192.168.253.7

Management LAN (ELAN) gateway IP address 207.179.153.97

Management LAN (ELAN) subnet mask 255.255.255.224

Voice LAN (TLAN) subnet mask 255.255.255.0

+ SNMP Add

+ VGW and IP phone codec profile

+ QoS

+ LAN configuration

+ SNTP

+ H323 GW Settings

+ Firmware

+ SIP GW Settings

+ SIP URI Map

+ SIP CD Services

+ Cards Add

+ Signaling Servers Add

Save and Transfer Cancel

- 3 Click on **VGW and IP phone codec profile** to open the parameter list as shown in Figure 118.

This area also includes a list of codecs.

Figure 118
VGW and IP Phone codec profile

- VGW and IP phone codec profile	
Enable Echo canceller	☒
Echo canceller tail delay	128
Voice activity detection threshold	-17 Range: -20 to +10
Idle noise level	-65 Range: -327 to +327
DTMF Tone detection	☒
Enable V.21 FAX tone detection	☒
FAX maximum rate (bps)	14400
FAX playout nominal delay	100 Range: 0 to 300
FAX no activity timeout	20 Range: 10 to 32000
FAX packet size	30
Codec: G711	Select ☒
Codec: G729A	Select ☒
Codec: G723.1	Select ☐
Codec: T38 FAX	Select ☒

- 4 To configure a codec, select the **Select** check box to the right of the codec name. For example, in Figure 119 on page 323 the G.729A codec has been selected.

Note: The G.711 and T38 FAX codecs are automatically selected.

Figure 119
Example of a selected codec — G.729A

Codec G711	Select ☒
Codec G729A	Select ☒
Codec G723.1	Select ☐
Codec T38 FAX	Select ☒

- 5 Click on the codec name to modify the **Voice payload size (ms/frame)**, **Voice playout (jitter buffer) nominal delay**, and **Voice playout (jitter buffer) maximum delay** values of a codec.

Use the drop-down lists to choose the values. See the example in Figure 120.

Figure 120
Example of G.729A settings

Codec G729A	Select ☒
Codec Name G729A	
Voice payload size (ms/frame)	20 ▼
Voice playout (jitter buffer) nominal delay	40 ▼
Modifications may cause changes to dependent settings	
Voice playout (jitter buffer) maximum delay	80 ▼
Modifications may cause changes to dependent settings	
VAD	☐

- 6 Repeat Step 4 and Step 5 for each codec that requires configuration.

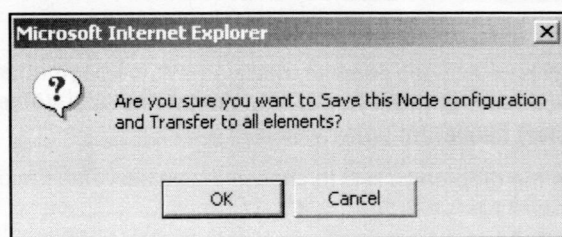
Note: For detailed information about configuring codecs, refer to *Converging the Data Network with VoIP* (553-3001-160) and *IP Line: Description, Installation, and Operation* (553-3001-365).

7 Click **Save and Transfer**.

This saves the changes and transfers the node configuration files to all elements in the node (that is, Signaling Servers, Call Server, and Voice Gateway Media Cards).

A warning dialog box opens asking if you want to save and transfer the configuration changes (see Figure 121).

Figure 121
Save and Transfer dialog box



8 Click **OK**.

A series of pages including the following display:

- **Transfer Progress** web page (see Figures 122 and 123 on page 325, and Figure 124 on page 326)
- **Transfer Failure Report** web page (if applicable)
- **Transfer / Status** web page (see Figure 125 on page 327)
This web page shows if the transfer was successful, and allows the node information to be transferred again.

Figure 122
Transfer Progress — Starting

Managing: [207.179.153.99](#)
IP Telephony » Nodes: Servers, Media Cards » [Node Configuration](#) » IP Telephony: Node ID 8 » [Edit](#) » Transfer Progress

Transfer Progress

 Transfer in Progress Please Wait

Card	Status	bootp	config
207.179.153.100	Starting	☐	☐
207.179.153.109	Starting	☐	☐
207.179.153.111	Starting	☐	☐

Figure 123
Transfer Progress — Transferring

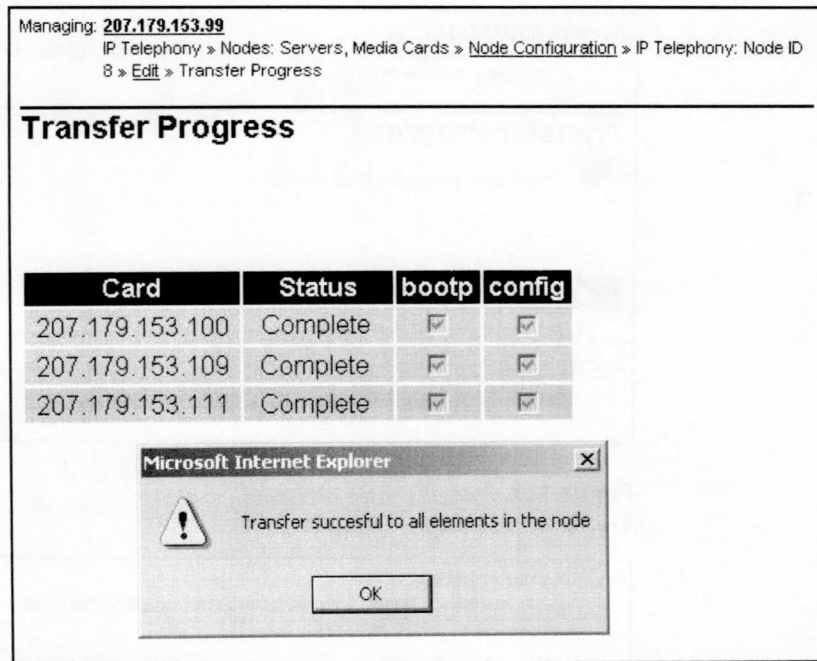
Managing: [207.179.153.99](#)
IP Telephony » Nodes: Servers, Media Cards » [Node Configuration](#) » IP Telephony: Node ID 8 » [Edit](#) » Transfer Progress

Transfer Progress

 Transfer in Progress Please Wait

Card	Status	bootp	config
207.179.153.100	Transferring	☐	☐
207.179.153.109	Transferring	☐	☐
207.179.153.111	Transferring	☐	☐

Figure 124
Transfer Progress — Completed



- 9 Click **OK**.

The **Transfer / Status** web page opens, as shown in Figure 125 on page 327. This **Transfer / Status** web page allows you to transfer the configuration to selected elements or all elements.

Figure 125
Transfer / Status

Managing: 207.179.153.99
IP Telephony » Nodes: Servers, Media Cards » Node Configuration » IP Telephony: Node ID 8 » Transfer / Status

Transfer / Status

Select All Unselect All Transfer to Selected Elements

	Hostname	ELAN IP	TN	Type	Role	Transfer Status (BOOTP)	Transfer Status (CONFIG)
☐	NODE8	207.179.153.100		Signaling Server	Leader	Finished	Finished
☐	1	207.179.153.109	13 0	ITG Pentium	Follower	Finished	Finished
☐	2	207.179.153.111	12 0	Succession Media Card	Leader	Finished	Finished

Cancel

10 Click **Cancel** to return to the **Node Configuration** web page.

The **Node Configuration** web page (Figure 116 on page 320) reopens if the transfer was successful.

Note: When on the **Node Configuration** web page, clicking **Transfer / Status** opens the **Transfer / Status** web page (see Figure 125). This page is used to send the node configuration files to all IP Telephony components in the node.

- If any element within the Node fails to transfer either BOOTP or CONFIG files, the **Transfer / Status** button is highlighted in red.
- The **Transfer / Status** button is highlighted in yellow if the transfer status of the node elements is unavailable.

End of Procedure

Configuring QoS (DiffServ) values

Quality of Service (QoS) values are configured through Element Manager.

Procedure 14

Configuring QoS (DiffServ) values

- 1 Select **IP Telephony > Nodes: Servers, Media Cards > Configuration** from the navigator.

The **Node Configuration** web page opens, as shown in Figure 116 on page 320.

- 2 Click **Edit** for the appropriate node.

The **Edit** web page opens, as shown in Figure 117 on page 321.

- 3 Click **QoS**.

The QoS section expands, as shown in Figure 126.

Figure 126

QoS section

- QoS	
Diffserv Codepoint(DSCP) Control packets	40 Range: 0 to 63
Diffserv Codepoint(DSCP) Voice packets	46 Range: 0 to 63
Enable 802.1Q support	☐
802.1Q Bits value (802.1p)	5 Range: 0 to 7

- 4 Enter the recommended values:
 - a. **Diffserv Codepoint (DSCP) Control packets = 40** - Class Selector 5 (CS5). The range is 0 – 63. This configures the priority of the signaling messaging.
 - b. **Diffserv CodePoint (DSCP) Voice packets = 46** - Control DSCP - Expedited Forwarding (EF). The range is 0 – 63.

Note: The Differentiated Service (DiffServ) CodePoint (DSCP) determines the priorities of the management and voice packets in the IP Line network. The values are stored in IP telephony CONFIG.INI file. The values used in the IP packets are respectively **160** (40*4) and **184** (46*4).

5 Click **Save and Transfer.**

For more information about Differentiated Service (DiffServ) CodePoint (DSCP), see *Converging the Data Network with VoIP* (553-3001-160) and *IP Line: Description, Installation, and Operation* (553-3001-365).

End of Procedure

Configuring call types

To configure call types and location codes HLOC, HNPA, LOC, NPA, NXX, SPN using Element Manager, follow the steps in Procedure 15.

Procedure 15

Configuring call types

- 1 Select **Dialing and Numbering Plans > Electronic Switched Network** from the navigator.

The **Electronic Switched Network (ESN)** web page opens.

- 2 Scroll to the **Numbering Plan (NET)** link (see Figure 127 on page 330).

To configure...	See...
Home Location Code (HLOC)	step 3 on page 331
Home Area Code (HNPA)	step 4 on page 332
Location Code (LOC)	step 5 on page 332
Numbering Plan Area Code (NPA)	step 6 on page 333
Exchange (Central Office) Code (NXX)	step 7 on page 336
Special Number (SPN)	step 8 on page 338

Note 1: Do not provision non-North American numbers as NPA or NXX if you want to configure overlap signaling, as these are still 100% en bloc. For more information about overlap signaling, refer to "Overlap signaling" on page 487.

Note 2: If you use the SPN to provide NPA and NXX equivalents, these can remain associated with the two ESN access codes (that is, AC1 = 6 and AC2 = 9).

- If the destination is accessed by way of another CS 1000 system, then leave the number as an SPN and translate it at the interface to the PSTN.
- If the destination is accessed by way of any other device, then perform call-type conversion as required for that device. Usually, this means changing the call type to national or subscriber (NPA, NXX) in the DMI of the Call Server sending out the number. (Overlap signaling allows this use of NPA and NXX, since the call began as an SPN. This allows national and local number overlap to a third party.)

Note 3: To get an HNPA equivalent with SPN, use local termination (LTER) in the RLI and delete the prefix.

Figure 127
Numbering Plan (NET)

- **Numbering Plan (NET)**
 - **Access Code 1**
 - Home Area Code (HNPA)
 - Home Location Code (HLOC)
 - Location Code (LOC)
 - Numbering Plan Area Code (NPA)
 - Exchange (Central Office) Code (NXX)
 - Special Number (SPN)
 - Network Speed Call Access Code (NSCL)
 - Free Calling Area Screening (FCAS)
 - Free Special Number Screening (FSNS)
 - **Access Code 2**
 - Home Area Code (HNPA)
 - Home Location Code (HLOC)
 - Location Code (LOC)
 - Numbering Plan Area Code (NPA)
 - Exchange (Central Office) Code (NXX)
 - Special Number (SPN)
 - Network Speed Call Access Code (NSCL)
 - Free Calling Area Screening (FCAS)
 - Free Special Number Screening (FSNS)

- 3 To configure Home Location Code, perform the following steps:
 - a. Click **Home Location Code (HLOC)** under **Access Code 1** or **Access Code 2**.

The **Home Location Code List** web page opens, as shown in Figure 128.

Figure 128
Home Location Code List web page

Managing: **207.179.153.99**
Customer 00 > Numbering Plan (NET) > Access Code 1 > Home Location Code List

Home Location Code List

Please enter a home location code

- b. Enter a code in the **home location code** text box.
- c. Click **to Add**.

The **Home Location Code** web page opens, as shown in Figure 129. The **Home Location code (HLOC)** is auto-filled.

Figure 129
Home Location Code web page

Managing: **207.179.153.99**
Customer 00 > Numbering Plan (NET) > Access Code 1 > Home Location Code List > Home Location Code

Home Location Code

Input Description	Input Value
Home Location code (HLOC):	123
Digit Manipulation Index (DMI):	1 ▼

- d. Select a **Digit Manipulation Index (DMI)**.
- e. Click **Submit**.

- 4 To configure Home Area Code (HNPA), perform the following steps:
 - a. Click **Home Area Code (HNPA)** under **Access Code 1** or **Access Code 2**

The **Home Numbering Plan Area Code** web page opens, as shown in Figure 130.

Figure 130
Home Numbering Plan Area Code web page

Input Description	Input Value
Home Numbering Plan Area code (HNPA):	

Submit Refresh Delete Cancel

- b. Enter the **Home Number Plan Area code (HNPA)** in the text box.
 - c. Click **Submit**.
- 5 To configure Location Code (LOC), perform the following steps:
 - a. Click **Location Code (LOC)** under **Access Code 1** or **Access Code 2**.

The **Location Code List** web page opens, as shown in Figure 131.

Figure 131
Location Code List web page

Please enter a location code Submit

- b. Enter a code in the **location code** text box.
- c. Select **to Add** from the drop-down list.
- d. Click **Submit**.

The **Location Code** web page opens, as shown in Figure 132.

Figure 132
Location Code web page

Managing: 207.179.153.99
 Dialing and Numbering Plans » Electronic Switched Network (ESN) » Customer 00 » Numbering Plan (NET) » Access Code 1 » Location Code List » Location Code

Location Code

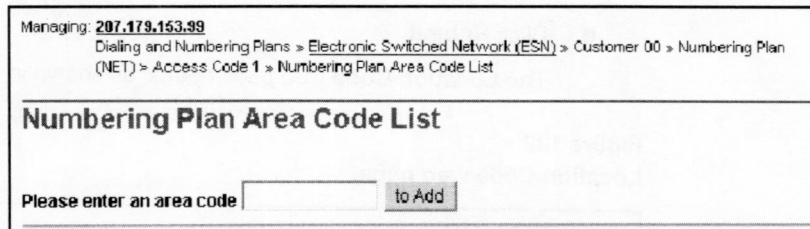
Input Description	Input Value
Location code (LOC):	123
Flexible Length (FLEN):	0
Route List Index (RLI):	0 ▾
maximum 7 digit NPA code allowed (NPA):	
maximum 7 digit NXX code allowed (NXX):	
Inhibit Time Out Handler (ITOH):	☐
Incoming Trunk group Exclusion Index (ITE):	▾
Listed Directory Number (LDN):	
Direct Inward Dial (DID):	☐

Submit Cancel

- e. Enter the appropriate information.
 - f. Click **Submit**.
- 6 To configure Number Plan Area Code (NPA), perform the following steps:
- a. Click **Numbering Plan Area Code (NPA)** under **Access Code 1** or **Access Code 2**.

The **Numbering Plan Area Code List** web page opens, as shown in Figure 133 on page 334.

Figure 133
Numbering Plan Area Code List web page



Managing: 207.179.153.99
Dialing and Numbering Plans > Electronic Switched Network (ESN) > Customer 00 > Numbering Plan (NET) > Access Code 1 > Numbering Plan Area Code List

Numbering Plan Area Code List

Please enter an area code

- b. Enter an area code.
- c. Click **to Add**.

The **Numbering Plan Area Code** web page opens, as shown in Figure 134 on page 335.

Figure 134
Numbering Plan Area Code web page

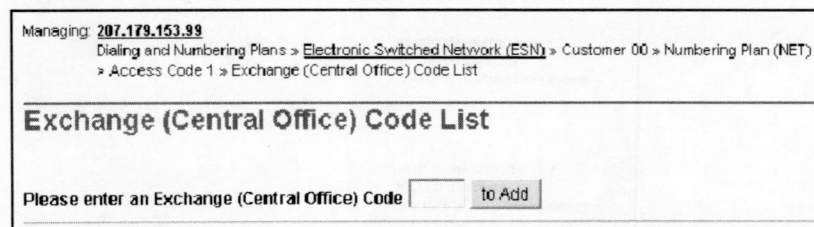
Input Description	Input Value
Numbering Plan Area code translation (NPA):	613
Route List Index (RLI):	0
Number to be denied within the NPA (DENY): (items seperated by a space)	
Digit Manipulation Index for LDD Numbers (DMI):	1
- Local DID number to be recognized (LDID): (items seperated by a space)	
Local DDD number to be recognized (LDDD): (items seperated by a space)	
Remote DID number to be recognized (RID): (items seperated by a space)	
Remote DDD number to be recognized (RDDD): (items seperated by a space)	
Incoming Trunk group Exclusion Digits (ITED): (items seperated by a space)	
Allowed codes (ALLOW): (items seperated by a space)	
Incoming Trunk group Exclusion Index (ITEI):	
Submit Cancel	

- d. Enter the appropriate information.
 - e. Click **Submit**.
- 7 To configure Exchange (Central Office) Code (NXX), perform the following steps:
- a. Click **Exchange (Central Office) Code (NXX)** under **Access Code 1** or **Access Code 2**.

The **Exchange (Central Office) Code List** web page opens, as shown in Figure 135.

Figure 135

Exchange (Central Office) Code List web page



Managing: **207.179.153.99**
Dialing and Numbering Plans > [Electronic Switched Network \(ESN\)](#) > Customer 00 > Numbering Plan (NET)
> Access Code 1 > Exchange (Central Office) Code List

Exchange (Central Office) Code List

Please enter an Exchange (Central Office) Code

- b. Enter the **Exchange (Central Office) Code** in the text box.
- c. Click **to Add**.

The **Exchange (Central Office) Code** web page opens, as shown in Figure 136 on page 337.

Figure 136
Exchange (Central Office) Code web page

Managing: 207.179.153.99
Dialing and Numbering Plans > Electronic Switched Network (ESN) > Customer 00 > Numbering Plan (NET) > Access Code 1 > Exchange (Central Office) Code List > Exchange (Central Office) Code

Exchange (Central Office) Code

Input Description	Input Value
Numbering Plan Exchange (NOX):	123
Route List Index (RLI):	0
Number to be denied within the NOX (DENY): (Items separated by a space)	
Digit Manipulation Index for LDD Numbers (DMI):	1
Local DID number to be recognized (LDD): (Items separated by a space)	
Local DDD number to be recognized (LDD): (Items separated by a space)	
Remote DID number to be recognized (RDD): (Items separated by a space)	
Remote DDD number to be recognized (RDD): (Items separated by a space)	
Incoming Trunk group Exclusion Digits (ITED): (Items separated by a space)	
Allowed codes (ALLOW): (Items separated by a space)	
Incoming Trunk group Exclusion Index (ITEI):	

Submit Cancel

- d. Enter the appropriate information.
- e. Click **Submit**.

8 To configure Special Number (SPN), perform the following steps:

- a. Click **Special Number (SPN)** under **Access Code 1** or **Access Code 2**.

The **Special Number List** web page opens, as shown in Figure 137.

Figure 137
Special Number List web page

Managing: 207.179.153.99
Dialing and Numbering Plans » Electronic Switched Network (ESN) » Customer 00 » Numbering Plan (NET)
» Access Code 1 » Special Number List

Special Number List

Please enter a Special Number to Add

+ Special Number -- 0	Edit
Flexible Length: 0	
- International Dialing Plan: N	
Type of call that is defined by the special number : NONE	
Route List Index: 6	
+ Special Number -- 011	Edit
Flexible Length: 0	
- International Dialing Plan: N	
Type of call that is defined by the special number : NONE	
Route List Index: 9	

b. Enter the number.

c. Click **to Add**.

The **Special Number** web page opens (see Figure 138 on page 339).

d. Enter the appropriate information.

e. Click **Submit** at the bottom of the web page.

Figure 138
Special Number

Input Description	Input Value
Special Number translation (SPN):	11
Flexible Length (FLEN):	0
International Dialing Plan (INPL):	☐
Inhibit Time-out Handler (TOH):	☐
Route List Index (RLI):	0
Type of call that is defined by the special number (CLTP):	No call type (NONE)
Number to be Denied (DENY): (items separated by a space)	
Digit Manipulation Index for LDID Numbers (DMID):	1
Local DID number to be recognized (LDID): (items separated by a space)	
Local DDD number to be recognized (LDDD): (items separated by a space)	
Remote DID number to be recognized (RDID): (items separated by a space)	
Remote DDD number to be recognized (RDDD): (items separated by a space)	
Incoming Trunk group Exclusion Digits (ITED): (items separated by a space)	
Alternate Routing Remote Number (ARRN): (items separated by a space)	
Allowed codes for ADMMDM (STRK): (items separated by a space)	
Allowed codes (ALOM): (items separated by a space)	
Alternative Route List Index (ARLI):	0
Incoming Trunk group Exclusion Index (ITER):	

Submit Cancel

- f. Enter the appropriate information.
- g. Click **Submit** at the bottom of the web page.

End of Procedure

Configuring digit manipulation tables

Procedure 16

Configuring digit manipulation tables

- 1 Select **Dialing and Numbering Plans > Electronic Switched Network** from the navigator.
- 2 On the **Electronic Switched Network (ESN)** web page shown in Figure 107 on page 311, select **Customer xx > Network Control & Services > Digit Manipulation Block (DGT)**.

The **Digit Manipulation Block List** web page opens, as shown in Figure 139.

Figure 139

Digit Manipulation Block List web page

Managing: **207.179.153.99**
 Dialing and Numbering Plans > **Electronic Switched Network (ESN)** > Customer 00 > Network Control & Services > Digit Manipulation Block List

Digit Manipulation Block List

Please Choose the Digit Manipulation Block Index 4 to Add

+ Digit Manipulation Block Index -- 1	Edit
Number of leading digits to be Deleted: 0 Call Type to be used by the manipulated digits : NPA	
+ Digit Manipulation Block Index -- 2	Edit
Number of leading digits to be Deleted: 0 Insert: 9 Call Type to be used by the manipulated digits : NCHG	
+ Digit Manipulation Block Index -- 3	Edit
Number of leading digits to be Deleted: 0 Insert: 514818 Call Type to be used by the manipulated digits : NCHG	

- 3 Select a **Digit Manipulation Block Index** number in the drop-down list.
- 4 Click to **Add**.

The **Data Manipulation Block** web page opens, as shown in Figure 140.

Figure 140
Digit Manipulation Block web page

Input Description	Input Value
Digit Manipulation Index numbers (DMI):	4
Number of leading digits to be Deleted (DEL):	0
Insert (INST):	
IP Special Number (ISPN):	☐
Call Type to be used by the manipulated digits (CTYP):	Call type will not be changed (NCHG)

Submit Cancel

- 5 Enter the appropriate information.
- 6 Click **Submit**.

End of Procedure

Feature Implementation of IP Peer Networking

If you are using the Command Line Interface (CLI), use the following implementation tables to configure the IP Peer Networking feature.

Task summary list

The following is a summary of the tasks in this section:

- 1 LD 17 – Configure D-channels.
- 2 LD 15 – Configure network settings and options.
- 3 LD 16 – Configure the route. This route can be configured as an H.323 route or a SIP route.
 - To configure a SIP route, see page 346.
 - To configure an H.323 route, see page 348.
- 4 LD 97 – Configure the superloop for the Virtual Trunks.
- 5 LD 14 – Configure Virtual Trunks.
- 6 LD 86 – Configure dialing plan, networking, and ESN data.
- 7 LD 87 – Configure network access.
- 8 LD 86 – Configure the Digit Manipulation Index.
- 9 LD 86 – Configure the Route List Block for the Virtual Trunk route.
- 10 LD 87 – Configure CDP steering codes.
- 11 LD 90 – Configure call types and Location Codes.

LD 17 – Configure D-channels. (Part 1 of 2)

Prompt	Response	Description
REQ	CHG	Change existing data
TYPE	ADAN	Action Device And Number
- ADAN	NEW DCH xx	Action Device And Number, where xx is 0-63.
CAB_TYPE		Cabinet Type
	IP	IP Expansion Cabinet or Media Gateway
	FIBR	Fiber Expansion Cabinet

LD 17 – Configure D-channels. (Part 2 of 2)

Prompt	Response	Description
- CTYP	DCIP	Card Type D-channel over IP
- DES	x...x	Designator
BANR	YES	Enable security banner printing option
- IFC	SL1	Interface type for D-channel
CO_TYPE	aaa	Central Office switch type, where aaa = (STD) or ATT
- RCVF	YES	Auto-recovery to primary D-channel option.
- - ISLM	(4000)	Integrated Services Signaling Link Maximum The maximum number of ISL trunks controlled by the D-channel. Note: ISLM prompt is hidden for D-channel on IP and is defaulted to 4000.
- OTBF	1-(32)-127	Output Request Buffers
- RLS	xx	Release ID of the switch at the far end of the D-channel
- RCAP	ND2	Remote Capabilities Network Name Display method 2
	MWI	Message Waiting Indication support over SIP using a SIP NOTIFY message rather than an MCDN message encapsulated in SIP. Note: MWI is also used for H.323 if a BCM is in the network.

LD 15 – Configure network settings and options. (Part 1 of 2)

Prompt	Response	Description
REQ:	NEW	Add new block
	CHG	Change existing data
TYPE:	NET	ISDN and ESN Networking options
CUST		Customer number
	0-99	Range for Large System and CS 1000E system
	0-31	Range for Small System, CS 1000S system, Media Gateway 1000B, and Media Gateway 1000T
...		
OPT	a...a	Options
AC2		Access Code 2
		Enter call types that use Access Code 2 as defined in LD 86, for automatic insertion of UDP access code. Multiple responses are permitted. If a numbering plan is not entered here, it is automatically defaulted to AC1.
	NPA	E.164 National number
	NXX	E.164 Subscriber number
	INTL	International number
	SPN	Special Number
	LOC	Location Code
FNP	(YES)	Enable Flexible Numbering Plan for customer
ISDN	YES	Integrated Services Digital Network
VPNI	1-16283	Virtual Private Network Identifier
- PNI	(0)-32700	Private Network Identifier
- CLID	(NO)	Do not enable Calling Line Identification option

LD 15 – Configure network settings and options. (Part 2 of 2)

Prompt	Response	Description
CNTC	xx	Country code (see Note 1 on page 345)
NATC	xx	National access code (see Note 1 on page 345)
INTC	xxx	International access code (see Note 1 on page 345)

Note 1: CNTC, NATC and INTC are needed when a public call is tandemed over the Virtual Trunk.

— CNTC is the country code for the country where the switch is located. For example, CNTC = 1 for Canada.

— NATC is the national access code. For example, NATC = 1 for Canada.

— INTC is the international access code. For example, INTC = 011 for Canada.

For example, a caller who wants to reach Austria dials 6-011-61-xxxxyyzzz from endpoint A (for example, in Toronto) over the Virtual Trunk to endpoint B (for example, in the United Kingdom) which serves as a gateway to the PSTN.

The 011 is stripped off at endpoint A because the NRS does not

understand it. Endpoint B would receive 61-xxxxxyzzz and compare 61 with its CNTC (= 44) and assumes that this is an international call. So, it inserts the INTC (= 00 for Europe) and sends 00-61-xxxxxyzzz to the PSTN routing to Austria.

Consider another caller from endpoint A making a call to the UK PSTN by dialing 6-011-44-xxxxxyzzz. Endpoint B would receive 44-xxxxxyzzz. It finds that 44 equals to its CNTC and figures that this is a national call. So, it strips off 44 and inserts the NATC (= 0 for UK) and sends 0-xxxxxyzzz to the PSTN.

Note 2: In the Route Data Block, the zone parameter makes the codec selections and calculates the bandwidth usage for calls to the trunk members of a given route.

Configure the routes:

- To configure a SIP route, see “LD 16 – Configure the SIP route.” below.
- To configure an H.323 route, see “LD 16 – Configure the H.323 route.” on page 348.

LD 16 – Configure the SIP route. (Part 1 of 3)

Prompt	Response	Description
REQ	NEW	Add a new route.
TYPE	RDB	Route Data Block
CUST	xx	Customer number as defined in LD 15.
ROUT		Route number
	0-511	Range for Large System and CS 1000E system
	0-127	Range for Small System, CS 1000S system, Media Gateway 1000B, and Media Gateway 1000T
DES	x...x	Designator The designator field for the trunk groups. This designator can be 0-16 alphanumeric characters.

LD 16 – Configure the SIP route. (Part 2 of 3)

Prompt	Response	Description
TKTP	TIE	Trunk Type TIE trunk
VTRK	YES	Virtual Trunk route, where: YES = This route is for Virtual Trunk NO = This route is not for Virtual Trunk (default)
ZONE	0-255	Zone for codec selection and bandwidth management
PCID	SIP	Protocol ID for the SIP route. Defines the route as a SIP route.
CRID	(NO) YES	CDR record (for SIP) to include correlation ID. YES = When enabled, the fourth line is included in the new CDR record. NO = The fourth line is not included in the CDR record (default). <i>See Call Detail Recording: Description and Formats (553-3001-350) for more information.</i> Note: This prompt appears only for a SIP Virtual Trunk (that is, if VTRK = YES and PCID = SIP) and CDR is turned on for this route.
NODE	xxxx	Node ID Where the Node ID matches the node of the Signaling Server. The Node ID can have a maximum of four numeric characters.
ISDN	YES	Integrated Services Digital Network option
- MODE	ISLD	Mode of operation
- DCH	0-159	D-channel number

LD 16 – Configure the SIP route. (Part 3 of 3)

Prompt	Response	Description
- IFC	SL1	Interface type for route (IFC responses are listed in <i>Software Input/Output: Administration</i> (553-3001-311))
- SRVC	a...a	Service type for AT&T ESS connections (SRVC responses are listed in <i>Software Input/Output: Administration</i> (553-3001-311))
- - PNI	(0)-32700	Private Network Identifier
- NCNA	(YES)	Network Calling Name Allowed
- NCRD	YES	Network Call Redirection
- INAC	(NO) YES	Inserts the ESN access code to an incoming private network call. INAC enables an ESN access code to be automatically added to an incoming ESN call from a private network. If INAC = YES, then digit insertion (INST) for NARS or BARS calls is bypassed and Access Code 1 (AC1) is used for all call types. However, calls can be specifically defined to use Access Code 2 (AC2) in LD 15 at the AC2 prompt. INAC is prompted when the route type is either a TIE trunk or an IDA trunk with DPNSS1 signaling.
ICOG	IAO	Incoming and Outgoing trunk. Incoming and Outgoing
ACOD	x...x	Access Code for the trunk route.

LD 16 – Configure the H.323 route. (Part 1 of 3)

Prompt	Response	Description
REQ	NEW	Add a new route.

LD 16 – Configure the H.323 route. (Part 2 of 3)

Prompt	Response	Description
TYPE	RDB	Route Data Block
CUST	xx	Customer number as defined in LD 15.
ROUT		Route number
	0-511	Range for Large System and CS 1000E system
	0-127	Range for Small System, CS 1000S system, Media Gateway 1000B, and Media Gateway 1000T
DES	x...x	Designator The designator field for the trunk groups. This designator can be 0-16 alphanumeric characters.
TKTP	TIE	Trunk Type TIE trunk
VTRK	YES	Virtual Trunk route, where: YES = This route is for Virtual Trunk NO = This route is not for Virtual Trunk (default)
ZONE	0-255	Zone for codec selection and bandwidth management
NODE	xxxx	Node ID Where the Node ID matches the node of the Signaling Server. The Node ID can have a maximum of four numeric characters.
PCID	H323	Protocol ID for the H.323 route.
ISDN	YES	Integrated Services Digital Network option
- MODE	ISLD	Mode of operation
- DCH	0-159	D-channel number

LD 16 – Configure the H.323 route. (Part 3 of 3)

Prompt	Response	Description
- IFC	SL1	Interface type for route (IFC responses are listed in <i>Software Input/Output: Administration</i> (553-3001-311))
- SRVC	a...a	Service type for AT&T ESS connections (SRVC responses are listed in <i>Software Input/Output: Administration</i> (553-3001-311))
- - PNI	(0)-32700	Private Network Identifier
- NCNA	(YES)	Network Calling Name Allowed
- NCRD	YES	Network Call Redirection
- INAC	(NO) YES	Inserts the ESN access code to an incoming private network call. INAC enables an ESN access code to be automatically added to an incoming ESN call from a private network. If INAC = YES, then digit insertion (INST) for NARS or BARS calls is bypassed and Access Code 1 (AC1) is used for all call types. However, calls can be specifically defined to use Access Code 2 (AC2) in LD 15 at the AC2 prompt. INAC is prompted when the route type is either a TIE trunk or an IDA trunk with DPNSS1 signaling.

LD 97 – Configure the superloop for the Virtual Trunks. (Part 1 of 2)

Prompt	Response	Description
REQ	CHG	Change existing data.

LD 97 – Configure the superloop for the Virtual Trunks. (Part 2 of 2)

Prompt	Response	Description
TYPE	SUPL	Superloop
SUPL	0-159 0-255	Superloop number 0-159: Superloop number in multiples of 4 0-255: Systems with Fiber Network Fabric

LD 14 – Configure Virtual Trunks. (Part 1 of 2)

Prompt	Response	Description
REQ	NEW NEW x	Create a trunk Create x trunks, where x = 1-255 (to create that number of consecutive trunks)
TYPE	IPTI	IP TIE trunk data block
TN	l s c u c u	Terminal Number Format for Large System and CS 1000E system, where l = loop, s = shelf, c = card, u = unit Format for Small System, CS 1000S system, Media Gateway 1000B, and Media Gateway 1000T, where c = card and u = unit
DES	a....a	Virtual Trunk descriptor Designator field for trunk groups where a...a = 0-16 alphanumeric characters (DES is an optional entry)
XTRK	VTRK	Extended Trunk Virtual Trunk type Note: If you entered a virtual TN at the TN prompt, then the XTRK prompt only accepts the VTRK option.
CUST	xx	Customer number as defined in LD 15.

LD 14 – Configure Virtual Trunks. (Part 2 of 2)

Prompt	Response	Description
...		
RTMB		Route number and Member Number
	0-511 1-4000	Range for Large System and CS 1000E system
	0-127 1-4000	Range for Small System, CS 1000S system, Media Gateway 1000B, and Media Gateway 1000T
CHID	1-4300	Channel ID for this trunk, dependent on the ISLM parameter (LD 17)
STRI	IMM	Start arrangement Incoming Immediate
STRO	IMM	Start arrangement Outgoing Immediate
SUPN	YES	Answer and disconnect Supervision required SUPN must equal YES for a COT with Virtual Network Service
...		
TKID	nnnnnnn	Trunk Identifier

LD 86 – Configure dialing plan, networking, and ESN data. (Part 1 of 2)

Prompt	Response	Description
REQ	NEW	Create new data block
FEAT	ESN	Electronic Switched Network

LD 86 – Configure dialing plan, networking, and ESN data. (Part 2 of 2)

Prompt	Response	Description
MXLC	0-999 0-16000	Maximum number of Location Codes (NARS only) Maximum number of Location Codes (NARS only) (with the ESN Location Code Expansion feature and the FNP feature enabled). Refer to ESN Location Code Expansion feature in <i>ISDN Primary Rate Interface: Features</i> (553-3001-369).
...		
CDP	YES	Coordinated Dialing Plan feature for this customer
- MXSC	x	Maximum number of Steering Codes Where x = • 0-8000 = Maximum number of Steering Codes for Small Systems and CS 1000S Systems • 0-10000 = Maximum number of Steering Codes in North America • 0-32000 = Maximum number of Steering Codes outside North America
- NCDP	x	Number of digits to be included as part of the CDP DN (DSC + DN or LSC + DN) where x = 3-7.
AC1	x	One- or two-digit NARS/BARS Access Code 1
AC2	x	One- or two-digit NARS Access Code 2
DLTN	(YES)	NARS/BARS Dial Tone after dialing AC1 or AC2 access codes
ERWT	(YES)	Expensive Route Warning Tone
...		
TGAR	(NO)	Check for Trunk Group Access Restriction.

LD 87 – Configure network access.

Prompt	Response	Description
REQ	NEW	Add new data.
FEAT	NCTL	Network Control Block
SOHQ	(NO)	Off-Hook Queuing option
SCBQ	(NO)	Call-Back Queuing option
NCOS	(0)	Network Class of Service group number
TOHQ	(0)	TCOS OHQ eligibility

LD 86 – Configure the Digit Manipulation Index. (Part 1 of 2)

Prompt	Response	Description
REQ	NEW	Create new data.
CUST	xx	Customer number as defined in LD 15.
FEAT	DGT	Digit manipulation data block
DMI	xxxx	Digit Manipulation Index numbers Digit Manipulation Index with Flexible Numbering Plan (FNP) package 160 DMI is only prompted when the Directory Number Expansion (DNXP) package 150 is equipped and SDRR = LDID.
DEL	xx	Delete Number of leading digits to be deleted
INST	<cr>	Insert Up to 31 leading digits can be inserted

LD 86 – Configure the Digit Manipulation Index. (Part 2 of 2)

Prompt	Response	Description
CTYP	<cr>	Call Type to be used by the manipulated digits. This call type must be recognized by the far-end switch.
...		

Nortel recommends that all routes in a Route List Block (RLI) be configured as either overlap or en bloc. That is, an en bloc route should not have alternate routes that are configured as overlap, and vice versa. Erratic behavior can occur when overlap and en bloc routes are configured as alternate routes. Normal behavior occurs on alternate routes as long as the alternate route has the same overlap capabilities as the main route.

LD 86 – Configure the Route List Block for the Virtual Trunk route. (Part 1 of 2)

Prompt	Response	Description
REQ	NEW	Create new data block
FEAT	RLB	Route list block
...		
RLI	0-127 0-255 0-999	Route List Index to be accessed CDP and BARS NARS FNP
ENTR	xxx	Entry number for NARS/BARS Route list Where xxx = • 0-63 Entry number for NARS/BARS Route List • 0-6 Route list entry number for CDP • X Precede with x to remove
LTER	(NO)	Local Termination entry

LD 86 – Configure the Route List Block for the Virtual Trunk route. (Part 2 of 2)

Prompt	Response	Description
ROUT		Route number
	0-511	Range for Large System and CS 1000E system
	0-127	Range for Small System, CS 1000S system, Media Gateway 1000B, and Media Gateway 1000T
DMI		Digit Manipulation Index
	0	No digit manipulation required
	1-31	CDP
	0-255	NARS and BARS
	0-999	FNP
...		

LD 87 – Configure the CDP steering codes. (Part 1 of 2)

Prompt	Response	Description
REQ	NEW	Create new data block
FEAT	CDP	Coordinated Dialing Plan
TYPE		Type of steering code
	DSC	Distant Steering Code
DSC	x..x	Distant Steering Code Up to 4 digits; up to 7 digits with Directory Number Expansion (DNXP) package 150.
- FLEN	(0)	Flexible Length number of digits
- DSP	(LSC)	Display (Local Steering Code)
- RRPA	(NO)	Remote Radio Paging Access

LD 87 – Configure the CDP steering codes. (Part 2 of 2)

Prompt	Response	Description
- RLI	0-31 0-127 0-255 0-999	Route List Index to be accessed for Distant Steering Code. Cannot use non-zero entries or DMI. CDP BARS NARS Flexible Numbering Plan (FNP)
- CCBA	(NO)	Collect Call Blocking (CCB) Denied
- NPA	<cr>	North American Numbering Plan Routing code: maximum 7-digit National code enabled
- NXX	<cr>	North American Numbering Plan Routing code: maximum 7-digit subscriber code allowed

LD 90 – Configure call types and Location Codes. (Part 1 of 2)

Prompt	Response	Description
REQ	NEW CHG	Create new data block Change existing data block
CUST	xx	Customer number as defined in LD 15.
FEAT	NET	Network Translator (Network translation tables)
TRAN	AC1 AC2	Translator Access Code 1 (NARS/BARS) Access Code 2 (NARS)
TYPE	LOC	Location Code
LOC	x...x	Location Code

LD 90 – Configure call types and Location Codes. (Part 2 of 2)

Prompt	Response	Description
- FLEN	(0)-10	Flexible Length Enter the maximum number of digits expected. When this number of digits is dialed, dialing is considered to be complete and end-of-dial processing begins. Default is zero (0) digits.
- RLI	0-999	Route List Index Enter Route List Index for this LOC.
...		

VNR enhancement

To configure the VNR enhancement, configure AC2, PFX1, VNR, RLI, CDPL, UDPL, CNTC, CATC, and INTC in LD 15.

LD 15 – Configure the VNR enhancement. (Part 1 of 7)

Prompt	Response	Description
REQ:	NEW	Add new data block to the system.
TYPE:	NET	ISDN and ESN networking options
CUST		Customer number
	0-99	Range for Large System and CS 1000E system
	0-31	Range for Small System, CS 1000S system, Media Gateway 1000B, and Media Gateway 1000T
OPT		Options
	RTD	Coordinated Dialing Plan routing feature Denied
AC2	SPN LOC	Special Number; Location Code
FNP	(YES)	Enable Flexible Numbering Plan for customer.

LD 15 – Configure the VNR enhancement. (Part 2 of 7)

Prompt	Response	Description
ISDN	YES	Integrated Services Digital Network allowed for customer. Note: Prompted when ISDN signaling package 145 is equipped and either the Integrated Service Digital Network BRI Trunk Access (BRIT) package 233 is equipped or at least one PRA link is configured.
- VPNI	1-16283	Virtual Private Network Identifier
- CLID	YES	Allow Calling Line Identification option Calling Line Identification does not require ISDN.
-- ENTRY	xx	CLID entry to be configured. CLID entries must be between 0 and the value entered at the SIZE prompt - 1. Precede entry or entries with X to delete. ENTRY is repeated until a <cr> is entered.
--- HLOC	100-9999999	Home Location Code (ESN) as defined in LD 90 1 to 7 digits with extended code. Prompted when ISDN=YES, or with Digital Private Network Signaling System 1 (DPNSS) package 123.
--- LSC	0 .. x..x	Local Steering Code 1 to 7 digits. LSCs are required if the CDP DNs are longer than the local PDNs. The CLID sent for a CDP call is composed of the LSC defined in LD 15 plus the PDN of the calling set. Various ISDN network features depend on the CLID as the return address for sending feature control messages. Multiple LSCs may be defined in LD 87 for CDP but only one LSC can be defined here for the CLID. The LSC prompt appears only if the user has a five or six digit dialing plan, or if the DPNSS software package is equipped. LSC is prompted here if ISDN = NO, otherwise LSC is a subprompt of ISDN.

LD 15 – Configure the VNR enhancement. (Part 3 of 7)

Prompt	Response	Description
- PFX1	xxxx	Prefix 1. Prefix or area code for International PRA. First element of Calling Party Number. PFX1 + PFX2 + DN cannot exceed 8 numbers for AXE-10. Prompted with International Primary Rate Access (IPRA) package 202.
- PRX2	xxxx	Prefix 2. Central Office Prefix for International PRA. Second element of Calling Part Number. PFX1 + PFX2 + DN cannot exceed 8 numbers for AXE-10. Prompted with International Primary Rate Access (IPRA) package 202.
- RCNT	0-(5)	Redirection Count for ISDN calls Maximum number of inter-node hops allowed in a network redirection call, only enforced when ISDN = YES. This field must be set to greater than 0 for a network redirection to take place.
- PSTN	(NO)	Public Service Telephone Networks Limit the number of PSTNs allowed in a network connection to one PSTN. The default (NO) puts no limit on the number of PSTN connections.
- - TNDM	0-(15)-31	Tandem Threshold/Loop Avoidance Limit This is the value permitted in a network connection. If the value entered is greater than 25, then 25 will be used for DPNSS calls. Prompted when Integrated Services Digital Network (ISDN) package 245 and ISDN Supplementary Features (ISDN INTL SUP) package 161, or Digital Private Signaling System Network Services (DNWK) package 231 is equipped.

LD 15 – Configure the VNR enhancement. (Part 4 of 7)

Prompt	Response	Description
-- PCMC	0-(15)-31	Pulse Code Modulation Conversions permitted in a network connection, μ -Law to A- Law or A- Law to μ -Law, in a network connection
- SATD	0-(1)-5	Satellite Delays. Number of satellite delays allowed in a network connection
OCLI	NO	NO manipulation is done on outgoing CLID for calls forwarded to EuroISDN link.
TIDM	(NO)	Trunk Identity Meaningful
DASC	xxxx	Display Access Code Enter the access code which is to be placed on displays before Originating Line Identities (OLI) and Terminating Line Identities (TLI) are received from the ISDN. The default is no code, when creating a new data block. Prompted with Multi Language Wake Up (MLWU) package 206 and Integrated Digital Access (IDA) package 122.
ROPT	(NRO)	No Route Optimization This option may be used to suppress Route Optimization on switches which already have high traffic.
DITI	(NO)	DID to TIE connections allowed
TRNX	(NO)	Prevent transfer on ringing of supervised external trunks across a private network
EXTT	(NO)	Prevent connection of supervised external trunks via either call transfer or conference

LD 15 – Configure the VNR enhancement. (Part 5 of 7)

Prompt	Response	Description
FTOP	(FRES)	Flexible Trunk to Trunk Options. Flexible Trunk to Trunk Connections Restricted. FTT feature is inactive.
APAD	x y (0) (0)	Alternative Pad. Where: x = trunk pad selection and y = conference pad selection Valid inputs for x are: (0) = default North America 1 = Australia 2 = New Zealand 3 = Italy 4 = China EPE or EPE/IPE systems 5 = China pure IPE system 6-7 = future usage currently set to default Valid inputs for y are: (0) = default North America 1 = Alternative Conference pads selected The default = 0 when REQ = NEW. The default is the existing value when REQ = CHG. Alternative Conference pads are only provided on specific Conference cards.
DMWM	(NO)	Enable the output of DPNSSI Message Waiting Indication Non Specified Information error messages
MWNS	(NO)	Message Waiting Indication DPNSSI Non Specified Information string to recognize.
VNR	(YES)	Vacant Number Routing
- RLI	0-999	Route List Index as defined in LD 86

LD 15 – Configure the VNR enhancement. (Part 6 of 7)

Prompt	Response	Description
- CDPL	1-(10)	Flexible length of Vacant Number Routing (VNR) Coordinated Dialing Plan (CDP)
- UDPL	1-(19)	Uniform Plan Public Flexible length of Vacant Number Routing (VNR) Uniform Dialing Plan digits (UDP). Enter the maximum number of UDP digits expected by VNR.
NIT	2-(8)	Network Alternate Route Selection (NARS) Interdigit Timer
NAS_ATCL	(YES)	Network Attendant Service Attendant Control allowed
NAS_ACTV	NO	Network Attendant Service routing Activated
FOPT	0-(14)-30	Flexible Orbiting Prevention Timer The number of seconds in two second intervals that CFW should be suspended on a set that has just forwarded a call off-node. Odd entries are rounded up to the next valid entry. A response of 0 disables FOPT.
CNDN	0 .. x..x	Customer Calling Number Identification DN on outgoing Multifrequency Compelled Signaling (MFC) calls
- CNIP	(YES)	Calling Number Identification Presentation Send Customer Calling Number Identification (CNDN) + Trunk ID (TKID) if Calling Line ID (CLID) = NO in LD 17
CNAT	0 .. x..x	CNI Attendant DN on outgoing Multifrequency Compelled Signaling (MFC) calls.
CNTC	x	Country Code (see Note 1 on page 345)
NATC	x	National Access Code (see Note 1 on page 345)

LD 15 – Configure the VNR enhancement. (Part 7 of 7)

Prompt	Response	Description
INTC	xxx	International Access Code (see Note 1 on page 345)

LD 21 prints which dialing plan is used with AC1. This helps identify which dialing plans use AC1 and which other dialing plans use AC2.

LD 21 - Print the dialing plan.

Prompt	Response	Description
REQ	PRT	Print data block for the TYPE specified
TYPE	NET	ISDN and ESN networking options
CUST	xx	Customer number as defined in LD 15.

Configuring the Gateways

Both H.323 Gateways and SIP Trunk Gateways (that is, the Virtual Trunk applications) are supported.

The four possible configurations are:

- no Gateways (no Virtual Trunk)
- H.323 Gateway only (H.323 Virtual Trunk only)
- SIP Trunk Gateway only (SIP Virtual Trunk only)
- Both H.323 and SIP Trunk Gateways (both H.323 and SIP Virtual Trunks)

Enabling and configuring the H.323 Gateway

The H.323 Gateway runs only on the Signaling Server. However, configuration of the H.323 Gateway requires configuration on both the Call Server and the Signaling Server. You must use Element Manager to configure the H.323 Gateway on the Signaling Server.

- For Call Server configuration, follow “Feature Implementation of IP Peer Networking” on page 341. In LD 16, configure the route as an H.323 route (see page 348).
- For Signaling Server configuration, perform the following procedures using Element Manager:
 - Procedure 17: “Enabling the H.323 Gateway (H.323 Virtual Trunk application)” on page 365”
 - Procedure 18: “Configuring the H.323 Gateway settings” on page 367”

Procedure 17

Enabling the H.323 Gateway (H.323 Virtual Trunk application)

- 1** Log in to Element Manager.
- 2** Select **IP Telephony > Nodes: Servers, Media Cards > Configuration** from the navigator.
The **Node Configuration** web page opens, as shown in Figure 116 on page 320.
- 3** Click **Edit**.
The **Edit** web page opens, as shown in Figure 117 on page 321.
- 4** Click **Signaling Servers** to expand the section.
A list of Signaling Servers opens.
- 5** Select the appropriate **Signaling Server xxx.xxx.xxx.xxx Properties**.
The properties for that Signaling Server display, as shown Figure 143 on page 370.

Figure 141
Signaling Server xxx.xxx.xxx.xxx properties

Signaling Server 207.179.153.100 Properties		Remove
Role Leader		
Management LAN (ELAN) IP address	207.179.153.100	*
Management LAN (ELAN) MAC address	00:02:B3:CF:0A:EC	*
Voice LAN (TLAN) IP address	192.168.253.6	*
Voice LAN (TLAN) gateway IP address	192.168.253.1	
Hostname	NODE8	*
H323 ID	SCSE1_GW	
Enable set TPS	☒	
Enable virtual trunk TPS	H.323 only	
Enable SIP Proxy / Redirect Server	☒	
SIP Transport Protocol	TCP	
Local SIP Port	5060	
SIP Domain name	myServiceProvider.cor	
SIP Gateway Endpoint Name	sipGWsite1	
SIP Gateway Authentication Password		
Enable H323 Gatekeeper	☒	
Network Routing Service Role	Primary	
System name	InnLab	
System location	T5	
System contact	Buck	

- 6 Select an **H.323** option from the **Enable virtual trunk TPS** drop-down list. This field is used to enable H.323 Gateway.
Note: The four supported modes are: None, H.323 only, SIP only, and H.323 and SIP.
- 7 Verify the **H323 ID**. Each H.323 Gatekeeper is configured with an H.323 Gatekeeper alias name, which is an H323-ID. Enter any text string to describe the H.323 Virtual Trunk source in the **H323 ID** text box.
- 8 Click **Save and Transfer**.

End of Procedure

Procedure 18
Configuring the H.323 Gateway settings

- 1 Log in to Element Manager.
- 2 Select **IP Telephony > Nodes: Servers, Media Cards > Configuration** from the navigator.
The **Node Configuration** web page opens, as shown in Figure 116 on page 320.
- 3 Click **Edit**.
The **Edit** web page opens, as shown in Figure 117 on page 321.
- 4 Select **H323 GW Settings** to expand the section, as shown in Figure 142.

Figure 142
H323 GW Settings

- H323 GW Settings		
Primary gatekeeper IP address	192.168.253.6	
Alternate gatekeeper IP address	0.0.0.0	
Primary Network Connect Server IP address	207.179.153.100	
Primary Network Connect Server Port number	16500	Range: 1024 to 65535
Alternate Network Connect Server IP address	0.0.0.0	
Alternate Network Connect Server Port number	16500	Range: 1024 to 65535
Primary Network Connect Server timeout	10	Range: 1 to 30

- 5 Configure the following fields:
 - a. **Primary gatekeeper IP address:** Enter the TLAN network interface IP address (not the Node IP address) of the Leader Signaling Server running the H.323 Gatekeeper.
 - b. **Alternate gatekeeper IP address:** Enter the IP address if an Alternate Gatekeeper exists.
 - c. **Primary Network Connect Server IP address:** Enter or verify that the NCS IP address matches the Primary gatekeeper IP address (NRS). The NCS is used for IP Line Virtual Office, Branch Office (including the SRG), and Geographic Redundancy features. The NCS allows the Line TPS (LTPS) to query the NRS using the UNISim protocol.
 - d. **Primary Network Connect Server Port number:** Enter a port number for the Primary NCS. The port number must be numeric and up to 5 numbers in length. The range is 1024 to 65535. The default value is 16500.
 - e. **Alternate Network Connect Server IP address:** Enter the IP address of the alternate NCS IP address.
 - f. **Alternate Network Connect Server Port number:** Enter a port number for the Alternate NCS. The port number must be numeric and up to 5 numbers in length. The range is 1024 to 65535. The default value is 16500.
 - g. **Primary Network Connect Server timeout:** Enter a timeout value for the Primary NCS. The range is 1 to 30 seconds. The default value is 10 seconds.
- 6 Click **Save and Transfer**.

End of Procedure

Enabling and configuring the SIP Trunk Gateway

The SIP Trunk Gateway runs only on the Signaling Server. Configuration of the SIP Trunk Gateway requires configuration on both the Call Server and the Signaling Server. You must use Element Manager to configure the SIP Trunk Gateway on the Signaling Server.

- For Call Server configuration, follow “Feature Implementation of IP Peer Networking” on page 341. In LD 16, configure the route as a SIP route.
- For Signaling Server configuration, perform the following procedures using Element Manager:
 - Procedure 19: “Enabling the SIP Trunk Gateway (SIP Virtual Trunk application)”
 - Procedure 20: “Configuring the SIP Trunk Gateway settings” on page 372.
 - Procedure 21: “Configuring the SIP URI to NPI/TON mapping” on page 374

Procedure 19

Enabling the SIP Trunk Gateway (SIP Virtual Trunk application)

- 1 Log in to Element Manager.
- 2 Select **IP Telephony > Nodes: Servers, Media Cards > Configuration** from the navigator.

The **Node Configuration** web page opens, as shown in Figure 116 on page 320.
- 3 Click **Edit**.

The **Edit** web page opens, as shown in Figure 117 on page 321.
- 4 Select **Signaling Servers** to expand the section.

A list of Signaling Servers opens.
- 5 Select the appropriate **Signaling Server xxx.xxx.xxx.xxx Properties**.

The properties for that Signaling Server display, as shown in Figure 143 on page 370.

Figure 143
Signaling Server xxx.xxx.xxx.xxx properties

Signaling Server 207.179.153.100 Properties		Remove
Role	Leader	
Management LAN (ELAN) IP address	207.179.153.100 *	
Management LAN (ELAN) MAC address	00:02:B3:CF:0A:EC *	
Voice LAN (TLAN) IP address	192.168.253.6 *	
Voice LAN (TLAN) gateway IP address	192.168.253.1	
Hostname	NODE8 *	
H323 ID	SCSE1_GW	
Enable set TPS	☒	
Enable virtual trunk TPS	SIP only ▼	
Enable SIP Proxy / Redirect Server	☒	
SIP Transport Protocol	TCP ▼	
Local SIP Port	5060	
SIP Domain name	myServiceProvider.cor	
SIP Gateway Endpoint Name	sipGWsite1	
SIP Gateway Authentication Password		
Enable H323 Gatekeeper	☒	
Network Routing Service Role	Primary ▼	
System name	InnLab	
System location	T5	
System contact	Buck	

- 6 Select a **SIP option** from the **Enable virtual trunk TPS** drop-down list. This field is used to enable SIP Trunk Gateway and Services.

Note: The four supported modes are: None, H.323 only, SIP only, and H.323 and SIP.
- 7 Select the **SIP Transport Protocol**. This is the transport protocol used for SIP message exchange between the Gateway and Redirect/Proxy Server. The two options are TCP and UDP. TCP is the default option.

Note: Nortel recommends that you use the default option (TCP) for SIP traffic.
- 8 Verify the **Local SIP Port**. This is the port to which the gateway listens. The default is 5060.
- 9 Enter the **SIP Domain Name**. This string identifies the SIP Service Domain. The SIP Domain Name configured in the Signaling Server properties must match the Service Domain name configured in the NRS (see "Adding a Service Domain" on page 413). This string is used in building all SIP messages and appears in the phone context. The string must be less than 128 characters in length. The valid characters are a-z, 0-9, period (.), hyphen (-), comma (,), and underscore (_). This field must be specified if the SIP Trunk Gateway application is enabled.
- 10 If authentication is turned on in the NRS (SIP Redirect Server) or on the MCS 5100 Proxy Server, then the **SIP Gateway Endpoint Name** and **SIP Gateway Authentication Password** must be entered and must match the Gateway Endpoint name and Gateway Endpoint authentication password used by the SIP Redirect Server (see "Adding a Gateway Endpoint" on page 424). The name and authentication password are used in authenticating the Gateway Endpoint with the SIP Redirect Server.
 - a. **SIP Gateway Endpoint Name:** Enter the endpoint name. This is the username that is used when authenticating this gateway with the NRS (SIP Redirect Server) or the MCS 5100 Proxy Server. This field must be specified if authentication is enabled for the Gateway Endpoint in the NRS or Proxy Server.
 - b. **SIP Gateway Authentication Password:** Enter the password. This is the password that is used when authenticating this gateway with the NRS (SIP Redirect Server) or the MCS 5100 Proxy Server. This field must be specified if authentication is enabled for the Gateway Endpoint in the NRS or Proxy Server.

- 11 Click **Save and Transfer**.

End of Procedure

Procedure 20

Configuring the SIP Trunk Gateway settings

- 1 Log in to Element Manager.
- 2 Select **IP Telephony > Nodes: Servers, Media Cards > Configuration** from the navigator.

The **Node Configuration** web page opens, as shown in Figure 116 on page 320.

- 3 Click **Edit**.

The **Edit** web page opens, as shown in Figure 117 on page 321.

- 4 Select **SIP GW Settings** to expand the section (see Figure 144 on page 372).

Figure 144
SIP GW Settings

- SIP GW Settings	
Primary Proxy / Re-direct IP address	0.0.0.0
Primary Proxy / Re-direct IP Port	5060
Primary Proxy Supports Registration	☐
Primary CDS Proxy or Re-direct server flag	☐
Secondary Proxy / Re-direct IP address	0.0.0.0
Secondary Proxy / Re-direct IP Port	5060
Secondary Proxy Supports Registration	☐
Secondary CDS Proxy or Re-direct server flag	☐

- 5 Complete the following for the Primary server:
 - a. **Primary Proxy / Re-direct IP address:** Enter the TLAN network interface IP address of the Primary SIP Redirect Server or the MCS 5100 Proxy Server.
 - b. **Primary Proxy / Re-direct IP Port:** Leave the default port value as 5060 for the Primary SIP Redirect Server or the MCS 5100 Proxy Server.
 - c. **Primary Proxy Supports Registration:** This check box tells the SIP Trunk Gateway whether the primary NRS (SIP Redirect Server) supports registration. If the check box is selected, then the SIP Trunk Gateway must register with the primary NRS. If the check box is not selected, then the SIP Trunk Gateway will not register with the primary NRS.
 - d. The **Primary CDS Proxy or Re-direct server flag** is not used in this release.
 - e. **Secondary Proxy / Re-direct IP address:** Enter the TLAN network interface IP address of the Secondary SIP Redirect Server or the MCS 5100 Proxy Server (if configured).
 - f. **Secondary Proxy / Re-direct IP Port:** Leave the default port value as 5060 for the Secondary SIP Redirect Server or the MCS 5100 Proxy Server (if configured).
 - g. **Secondary Proxy Supports Registration:** This check box tells the SIP Trunk Gateway whether the secondary NRS (SIP Redirect Server) supports registration. If the check box is selected, then the SIP Trunk Gateway must register with the secondary NRS. If the check box is not selected, then the SIP Trunk Gateway will not register with the secondary NRS.
 - h. The **Secondary CDS Proxy or Re-direct server flag** is not used in this release.
- 6 Click **Save and Transfer**.

End of Procedure

Configuring the SIP URI to NPI/TON mapping using Element Manager

The SIP URI to NPI/TON mapping is used as a translation of a signaling request between the SIP Trunk Gateway and the NRS.

The SIP Trunk Gateway sends a request to the NRS to find the SIP address resolution. To configure the SIP Trunk Gateway to communicate with the NRS (SIP Redirect Server), the SIP URI to NPI/TON mapping must be done.

Once the NRS server is properly configured properly and the NRS numbering plan database had been provisioned (see “Configuring and managing the Network Routing Service” on page 379), you must build the SIP URI to NPI/TON mapping using Element Manager.

Procedure 21 provides the steps to create this SIP URI to NPI/TON mapping using an NRS example and an example for the MCS 5100.

Procedure 21

Configuring the SIP URI to NPI/TON mapping

- 1 Log in to Element Manager.
- 2 Select **IP Telephony > Nodes: Servers, Media Cards > Configuration** from the navigator.

The **Node Configuration** web page opens, as shown in Figure 116 on page 320.

- 3 Click **Edit**.

The **Edit** web page opens, as shown in Figure 117 on page 321.

- 4 Select **SIP URI Map** to expand the section.

Note: The fields require a character string that is less than 128 characters in length. The valid characters include: a-z, 0-9, ., -, _, and +. These fields must be completed if the SIP Trunk Gateway application is enabled.

The values in this SIP URI Map section are based on the example provided in the chapter “Network Routing Service overview” on page 201, specifically the examples provided in Table 13: “Numbering plan mapping” on page 217.

To complete the NRS example, refer to Figure 145 on page 375 and go to step 5 on page 375.

To complete the MCS 5100 example, refer to Figure 146 on page 376 and go to step 6 on page 376.

Figure 145
SIP URI Map for the NRS example

- SIP URI Map	
Public E.164/National domain name	+1
Public E.164/Subscriber domain name	+1613
Public E.164/Unknown domain name	
Public E.164/Special Number domain name	
Private/UDP domain name	myCompany.com
Private/CDP domain name	main.myCompany.com
Private/Special Number domain name	main.myCompany.com
Private/Unknown (vacant number routing) domain name	
Unknown/Unknown domain name	

- 5 Fill in the following fields for the NRS example (see Figure 145):
- Type **+1** in the **Public E.164/National domain name** text box.
 - Type **+1613** in the **Public E.164/Subscriber domain name** text box.
 - Leave the **Public E.164/Unknown domain name** text box blank.
 - Leave the **Public E.164/Special Number domain name** text box blank.
 - Type **myCompany.com** in the **Private/UDP domain name** text box.
 - Type **myCdpDomain.myCompany.com** in the **Private/CDP domain name** text box.
 - Type **special.myCdpDomain.myCompany.com** in the **Private/Special Number domain name** text box.
 - Leave the **Private/Unknown (vacant number routing) domain name** text box blank.
 - Leave the **Unknown/Unknown domain name** text box blank.
 - Click **Save and Transfer**.

Figure 146
SIP URI Map for the MCS 5100 example

- SIP URI Map	
Public E.164/National domain name	mynation.national.e164.
Public E.164/Subscriber domain name	myarea.mynation.local.
Public E.164/Unknown domain name	myarea.mynation.unknown.
Public E.164/Special Number domain name	myarea.mynation.special.
Private/UDP domain name	level1.private.myenterprise.
Private/CDP domain name	mylocation.level0.private.
Private/Special Number domain name	mylocation.special.private.
Private/Unknown (vacant number routing) domain name	mylocation.unknown.private.
Unknown/Unknown domain name	mylocation.unknown.unknown.

- 6 Fill in the following fields for the MCS 5100 example (see Figure 146):
- Type **mynation.national.e164.myrootdomain** in the Public E.164/National domain name text box.
 - Type **myarea.mynation.local.e164.myrootdomain** in the Public E.164/Subscriber domain name text box.
 - Type **myarea.mynation.unknown.e164.myrootdomain** in the Public E.164/Unknown domain name text box.
 - Type **myarea.mynation.special.e164.myrootdomain** in the Public E.164/Special Number domain name text box.
 - Type **level1.private.myenterprise** in the Private/UDP domain name text box.
 - Type **mylocation.level0.private.myenterprise** in the Private/CDP domain name text box.
 - Type **mylocation.special.private.myenterprise** in the Private/Special Number domain name text box.
 - Type **mylocation.unknown.private.myenterprise** in the Private/Unknown (vacant number routing) domain name text box.

- i. Type **mylocation.unknown.unknown.myrootdomain** in the Unknown/Unknown domain name text box.
- j. Click **Save and Transfer**.

End of Procedure

Restarting the Signaling Server

Some fields in Element Manager can be changed at run-time: SIP domain name, CDS proxy (yes or no), Gateway username and password, dialing plans, and all "SIP Service" related fields except ACD DN. The rest of the fields require a restart of the Signaling Server.

Warm restart

To warm restart the Signaling Server, following the steps in Procedure 22.

Procedure 22

Warm restarting the Signaling Server

- 1 Select **IP Telephony > Nodes: Servers, Media Cards > Maintenance and Reports** from the navigator in Element Manager.
- 2 Select the node containing the Signaling Server to be restarted.
- 3 Click **Reset** for the Signaling Server.

End of Procedure

Cold restart

Press the **RST** button on the front panel to cold restart the Signaling Server.

